

JPRS-UNE-86-012

12 DECEMBER 1986

USSR Report

NATIONAL ECONOMY



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INVESTMENT, PRICES, BUDGET, FINANCE

GOSPLAN OFFICIAL ADVOCATES INTENSIVE FIXED CAPITAL USE

Moscow EKONOMICHESKAYA GAZETA in Russian No 37, Sep 86 pp 2, 4

[Article by N. Fomichev, subdivision chief of USSR Gosplan]

[Text] There is every reason to consider the task of guaranteeing intensive utilization of fixed productive capital to be one of the most formidable and complicated tasks in comprehensive intensification of the economy. At the beginning of the twelfth 5-year planning period its size in the economy as a whole had reached an immense magnitude--1.57 trillion rubles. Fixed productive capital comprises the decisive part of the USSR's national wealth. Its share in that wealth has increased from 37 percent in 1970 to 44 percent in 1985.

High growth rates of fixed productive capital are typical of our economy. For instance, for the economy as a whole it nearly tripled over the period 1971-1985; in agriculture and industry it did triple, in transportation and communications it grew 2.8-fold, and in construction 3.6-fold.

The immense resources which our society allocates to furnishing equipment to production have not, however, been used efficiently enough. The reproduction of fixed capital has in recent years been extensive in nature to a considerable extent, and this has been adversely affecting the performance of economic and social tasks.

Efficiency and Balance as Factors in Economic Growth

In the seventies an extremely adverse trend took shape in the growing physical age and increasing obsolescence of fixed capital. This was an inevitable consequence of the unjustified inclination to build new enterprises. In such branches as ferrous metallurgy, certain branches of machinebuilding, and the building materials industry the degree of wear of assets is more than 40 percent, which substantially exceeds the standard.

The repair sector has ballooned because of the aging of capital assets. The turnover of the country's metal stock has also slowed down and the artificial shortage of labor resources has become more acute. In industry alone 10 billion rubles go for equipment repair; more than 3 billion rubles of this goes for equipment which is being operated beyond its rated life.

At new enterprises there is quite often a shortage of workers for highly productive equipment. These figures were cited at the June (1986) Plenum of the CPSU Central Committee: for the industrial sector as a whole there are about 700,000 job vacancies. And this is true when for all practical purposes equipment operates on one shift. If a shift coefficient of 1.7 were achieved, the number of job vacancies would exceed 4 million.

In order to appreciate fully the intolerable nature of the situation that has come about, we need to add that the outdated equipment can only produce yesterday's products, while at the same time the production costs for those products are unjustifiably high.

The most substantial contradiction in the present state and reproduction of means of labor is certainly the discrepancy in the rates of increase of their technical level and the economic results of production. Whereas fixed productive capital in the industrial sector tripled over the period 1971-1985, the productivity of labor rose only 1.82-fold. Over those years the gap between the growth rates of productivity and those of the capital-worker ratio in the sector increased from 8 to 70 points, which is one of the reasons for the decline in the output-capital ratio. During the 11th Five-Year Plan alone this drop was 13 percent.

The level of utilization is low for a substantial number of existing production capacities. Disproportions in the production capacities of industrial enterprises have been discovered both within and between branches, and one reason for this has been the unevenness and lack of consideration for compatibility in the activation of new production facilities.

Attempts to offset the serious shortcomings in the technical and economic level of fixed capital by activating new enterprises and production operations have not yielded the necessary results.

The unwelcome economic consequences of applying larger masses of outdated implements of labor have been restraining the possible growth of the economy and the rise in the prosperity of the people. According to our calculations, offsetting the drop in the output-capital ratio in the 10th Five-Year Plan would have required an additional 100 billion rubles of capital investments, while in the 11th the cost would have already been more than 200 billion rubles.

The Priorities of the 12th Five-Year Plan

In elaborating the conception of acceleration of the country's socioeconomic development, the party has come to the conclusion that there has to be a radical technical reconstruction of the economy, since its present technical capability does not make it possible to perform the economic and social tasks the country faces. This is a question of accelerated renewal of fixed productive capital, of a particularly high rate of development for machinebuilding, above all those of its branches which govern the vanguard directions of scientific-technical progress. "A new technical reconstruction of the economy is to be carried out," states the CPSU Program adopted by the 27th congress, "and the material and technical base of society transformed on that basis."

Technical reconstruction of the economy signifies a qualitatively new stage in the transformation of the mighty multisector potential built in the country thanks to the use of the most recent advances of scientific-technical progress and the development of those branches and production operations which correspond to its vanguard directions. It is becoming especially important to work on the problems of comprehensive mechanization and automation of production by intensifying the electronization and chemicalization of the economy, by introducing biotechnologies and new types of transport, and by increasing the level of industrialization of construction and the service sector. All of this necessitates radical shifts in structural policy and investment policy. In capital investments there will be a sharp increase in the share of resources for retooling and reconstruction of existing production. Over the long range up to the year 2000 the production potential will practically double, and capital will be updated in a qualitative way. The 12th Five-Year Plan will become a most important stage in performing that task.

Appropriations for economic development in the current 5-year period amount to 994 billion rubles of capital investments (from all sources). An immense construction program has been envisaged. The growth of capital investments is 190 billion rubles, as against 107 billion rubles in the last 5-year planning period. The total volume of capital investments for the 12th Five-Year Plan exceeds their total for the 6th, 7th, and 8th Five-Year Plans taken together.

Capital investments will increase substantially for retooling and reconstruction of existing production. Their total size will be 232 billion rubles. The share of outlays for retooling and reconstruction will increase from 38.5 percent in 1985 to 50.5 percent in 1990. Machinebuilding, which is a key branch ensuring that scientific-technical progress is introduced in all sectors of the economy, will experience priority development. A total of 63 billion rubles will be allocated to develop machinebuilding: more than 30 billion rubles for retooling and reconstruction of enterprises, or twice as much as in the 11th Five-Year Plan. Replacement of the active part of fixed capital in this branch will increase from 2.2 percent to 9.7 percent by the end of the 5-year period. This will make it possible to update nearly 60 percent of machinebuilding's fixed capital.

To give an idea of the rates and scale of development of machinebuilding we might point out that capital investments for this branch's development over the period 1986-1990 exceed the total volume of investments in the economy over the period 1918-1940; the respective figures were 63 and 61.7 billion rubles.

Optimization of the Processes of Reproduction

The shifts in investment policy and structural policy provided for in the 5-year plan make it possible to optimize the reproduction of fixed capital and to eradicate its extensive character.

The following stages can be distinguished in the cycle of reproduction of fixed capital: preparation of the designs of new enterprises, shops, and production operations; their construction; attainment of the rated indicators

called for in the design; utilization of capital, and finally, replacement in connection with physical wear and obsolescence.

The transition to intensive reproduction of capital in fact signifies optimization of this cycle: that is, conformity to plan and balance in all stages of the life of the means of labor, their economic efficiency, and achievement of a high result from the standpoint of the national economy from their operation.

There are two exceedingly important tasks which arise at this point. First, it is necessary to achieve present-day--from the technical and economic standpoints--intervals for the renewal of capital. Second, maximum return has to be achieved in the process of their operation.

A singular feature of the 12th Five-Year Plan lies in the fact that the balance among all the stages of the cycle of reproduction of fixed capital, which is determined by the 5-year plan, is based on standard requirements with respect to the service life of assets, construction time, and the time required to attain rated capacity following reconstruction or new construction of enterprises and facilities, and also with respect to the load on existing equipment.

Let us take construction as an example. According to the figures of USSR Stroybank, whereas the average standard construction time for production enterprises is 3-3.5 years, in actuality they take 9 years to build. Now a fundamentally new approach has been worked out to shaping the assignments of the plan. Beginning in 1987 capital investments and contract work involved in construction of projects are being assigned in strict conformity with the standard times. In the process of working on the 5-year plan the standard requirements were taken into account in determining the sectoral coefficients and amount of replacement of physically worn-out and obsolescent assets. New more strenuous standards were established for the utilization of production capacities.

Resolute replacement of outdated equipment and modernization of technology make it possible to substantially improve the dynamic behavior of economic indicators--the productivity of labor, production cost, specific capital investments relative to the growth of output, and the output-capital ratio.

In the power industry, for example, power generating units with an aggregate capacity of about 25 million kw are to be modernized and outdated and uneconomical equipment amounting to 15 million kw will be retired. This is the first time that equipment has been updated in that sector on such a scale. This alone will save 20 million tons of standard fuel, including 6.5 million tons in the year 1990.

The large-scale program for retooling and reconstruction of ferrous metallurgy opens up the possibility for substantial improvement of the quality of metal products, for increasing the share of progressive types of rolled products, and for achieving the entire growth of the sector's output without increasing the mining of iron ore or the production of coke and pig iron. During the years of the current 5-year planning period 14 obsolescent and physically worn-out blast furnaces are being retired, 70 outdated rolling mills will undergo reconstruction, and 38 will be retired.

Strategic and Tactical Tasks

In the effort at radical renewal and optimization of the reproduction of the fixed capital of the sectors of the economy it is very important to correctly combine the performance of strategic and current tasks. Some managers in the economy have shown a desire to retool production as soon as possible. Yet it is not just a matter of replacing one machine with another. The essence of the matter lies in the technical-and-economic level of the equipment coming in as the replacement. And if its new models do not afford a substantial rise of labor productivity, an appreciable saving on physical resources, an improvement in the dynamic behavior of the output-capital ratio, if it is not possible to attain the highest indicators of product quality with the new equipment, then the spending of resources for that kind of "renewal" should be put off a bit.

It is just as important to perform the task of retooling production comprehensively, rather than confining the effort to installation of certain pieces of ultramodern equipment, individual robots, robotic complexes, or machining centers.

Economically and technically substantiated solutions in elaborating programs for continuous renewal of the production capability of enterprises will help in obtaining the maximum return on capital investments and in increasing the efficiency of the equipment used.

In solving the problems of intensive utilization of capital much depends on the attitude which production workers take toward equipment. But cases are still not uncommon in which new one-of-a-kind equipment is underutilized because of a lack of discipline and irresponsibility on the part of workers and engineering personnel. At a number of enterprises new machines and equipment have stood in the open air for years. A large amount of machines and machinery is written off prematurely, before the end of their rated life. The present economic mechanism has to be improved in order to tighten responsibility and enhance motivation both of the enterprise and also of the individual worker for intensive utilization of the production potential and for its effective renewal.

In 1986 the first inventory will be taken of fixed assets in industry; this will make it possible to appraise the basic technical and economic parameters of machines and equipment and manufacturing processes. Completion of the work of taking the inventory of assets provides a good basis for drafting plans and programs for renewal and reconstruction.

New depreciation rates on capital assets are now being prepared, and uniform rates for overhaul are being worked out.

Decisions have been taken to improve management of the country's construction complex. Construction organizations now are more accountable for performance of work involved in retooling and reconstruction of existing production. It is very important to disseminate the initiative of the Leningrad party organization to improve utilization of the productive potential, to increase the

shift coefficient of the operation of machines and equipment, and to increase the pace of retooling and reconstruction of existing production. At a number of enterprises in Moscow and other cities the indicators of the utilization of production capacity and fixed capital are taken into account in internal cost accounting (khozraschet) and in the conditions of socialist competition.

It is very important that plans take fully into account the results of the certification of work stations in industry to determine the "fate" of specific equipment--as to the need for its replacement, modernization, or heavier load.

Factors in the Rise of the Output-Capital Ratio

The measures outlined by the 5-year plan to carry out technical reconstruction and optimization of the reproduction of fixed capital afford the possibility of improving the dynamic behavior of the output-capital ratio, an indicator which is defined as the ratio of output to the average annual value of fixed capital. The rates of decline of this indicator for the national economy as a whole will be cut in half. But in machinebuilding and a number of other branches of industry the negative trend in its reduction which has lasted for many years is to be altogether overcome.

The first thing to do at every enterprise in order to improve the dynamic behavior of the output-capital ratio is to bring the utilization of production capacities up to the rated level called for in the design and to eliminate incompatibility between capacities, which in most cases requires a minimum of capital investment, but affords a large growth of output.

Increasing the operating time of equipment and raising the shift coefficient are becoming a most important potential for increasing the output-capital ratio. The main thing here is to increase to the maximum the load on modern highly productive equipment by retiring outdated equipment.

In the branches of the machinebuilding complex the task has been set of bringing the shift coefficient of the operation of equipment up to 1.6-1.8 in 1990 and that of equipment with program control and automatic production lines up to 1.9. The load on flexible automatic production modules and systems is to be increased still more; their shift coefficient is to be raised to 2-2.5.

At the present time the shift coefficient in machinebuilding is relatively low at 1.37 and has undergone practically no change over the last 5 years. The national economy is suffering large losses because of tardy attainment of rated capacity at new facilities, especially in branches of the chemical and pulp and paper industries.

Improving the smoothness with which fixed capital is activated is an important untapped potential for growth of production and the output-capital ratio. A large portion of the new capacities are still activated in the 4th quarter. This can be judged from the size of the coefficient of participation of new capital in performance of the production program of sectors, which is defined as the ratio of the average annual addition of fixed capital to the total size of annual activation. A level of 35 percent is regarded as the standard.

The participation coefficient was considerably lower than this standard in 1985 in Minnefteprom--13.9, in USSR Minchermet--16.9, in Minkhimprom--14.5, in Minudobreniy--13.7, and in Minzhivmash--17.4 percent. The lag in activation of capacities in a number of ministries has persisted this year as well. For instance, in the 1st half of 1986 the target for activation of fixed capital in the industrial sector was fulfilled at a level of only 81 percent.

It is quite often asserted in economic and scientific circles that a drop in the output from the production potential is inevitable, since the process of economic growth is taking place in the context of a capital-intensive type of scientific-technical progress. In essence these "theories" justify the serious deficiencies in the process of renewal and utilization of fixed capital and in their retooling.

An analysis shows that on the basis of the existing production potential the output in the industrial sector could be increased 12-14 percent if the utilization of existing capacities were brought up to the level stated in the passport, if newly activated production capacities were brought up to level promptly, if downtime shorter than one shift were eliminated, if outdated equipment were replaced in conformity with service life and the shift coefficient raised to 1.8.

In ministries, associations, and enterprises it is advisable to examine possibilities for increasing the output-capital ratio by bringing the process of reproduction and utilization of fixed capital closer to the standard conditions stated in the passport. Accelerated renewal of the production plant on the basis of highly productive new equipment and intensive utilization of fixed capital make it possible to radically alter the currently adverse dynamic behavior of the output-capital ratio and to achieve its consistent improvement.

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CSO: 1820/14

RESOURCE UTILIZATION, SUPPLY

EXPERTS DEBATE CONSERVATION STRATEGY AT ROUND-TABLE

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 5, Sep-Oct 86
pp 923-944

[Contributions to round-table discussion held 21 April 1986: "Problems in Increasing the Economic Efficiency of Natural Resource Conservation"]

[Text] A "round-table" meeting was held 21 April 1986 on the problems in increasing the economic efficiency of natural resource conservation; it was organized by the journal EKONOMIKA I MATEMATICHESKIYE METODY jointly with TsEMI [Central Mathematical Economics Institute], the Scientific Council of the USSR Academy of Sciences on the Comprehensive Problem "Optimum Planning and Management of the Economy," the Unified Commission of the USSR Academy of Sciences and GKNT on Economic Evaluation of Natural Resources and Environmental Protection Measures, and by the Economics Section of the Scientific Council of the USSR Academy of Sciences for the Biosphere.

In preparing the round-table discussion the editors sent out a questionnaire.

Written responses were sent in by 31 persons who were scientific associates and specialists of ministries and departments involved with environmental protection and the optimum employment of natural resources: d.e.n. [doctor of economic sciences] A.A. Arisatov, laboratory chief of VNIISI of USSR Gosplan and the USSR Academy of Sciences; d.e.n. O.F. Balatskiy, department head of the Sumy Branch of the Kharkov Polytechnical Institute; d.g.-m.n. [doctor of geological and mineralogical sciences] A.M. Bybochkin, distinguished KFSR scientist and technician, chairman of USSR GKZ [State Commission for Mineral Reserves]; d.m.n. [doctor of medical sciences] A.V. Bykhovskiy, senior scientific associate of VNIIMI [All-Union Scientific Research Institute of Medical and Medical-Technical Information] of USSR Minzdrav; k.e.n. [candidate of economic sciences] V.R. Vesnin, senior methods expert of the Main Administration for the Teaching of the Social Sciences of USSR Minvuz; G.V. Voropayev, corresponding member of the USSR Academy of Sciences, director of IVP AN SSSR [Institute of Water Problems of the USSR Academy of Sciences]; k.e.n. V.N. Gerasimovich, laboratory chief of VNIISI of USSR Gosplan and the USSR Academy of Sciences; k.e.n. A.A. Golub, junior scientific associate of VNIISI of USSR Gosplan and the USSR Academy of Sciences; k.t.n. [candidate of engineering sciences] G.S. Gold, sector head of TsNIIeltsvetmet [Central Scientific Research Institute of Scientific, Technical, and Economic Information on Nonferrous Metallurgy]; d.e.n. A.A. Gusev, senior scientific associate of TsEMI;

d.t.n. [doctor of engineering sciences] V.I. Gurman, laboratory chief of the Irkutsk VTs of SO AN SSSR; k.e.n. G.I. Zaykov, department head of the All-Union Correspondence Machinebuilding Institute; V.M. Kotlyar, chief of the Natural Conservation Department of the Central Sanitary Epidemiology Station of MGA; k.e.n. M.I. Krayeva, head of the Sector for Economic Evaluation of Ocean Resources of the Institute for the Economics of the Sea of DVNTs [Far Eastern Scientific Center] of the USSR Academy of Sciences; k.e.n. M.E. Kyabbi, senior scientific associate of ANKh of SM SSSR; k.e.n. I.G. Levina, senior scientific associate of ANKh of SM SSSR; k.t.n. V.N. Lopatin, senior scientific associate of the Institute of Applied Geophysics imeni Ye.K. Fedorov of Goskomgidromet; k.e.n. Kh.V. Luyk, chief of the Administration for Natural Conservation of the ESSR Ministry of Forestry and Natural Conservation; d.e.n. N.N. Lukyanchikov, laboratory chief of NIChermet; k.e.n. K.B. Lvovskaya, junior scientific associate of TsNIIgradostroitelstva of USSR Gosgrazhdanstroy; I.A. Melentyev, member of the academy and member of the Presidium of the USSR Academy of Sciences, chairman of the Scientific Council of the USSR Academy of Sciences for Comprehensive Fuel and Energy Problems; k.e.n. M.Sh. Nudelman, deputy director of the Lvov Branch of the Economics Institute of the UkSSR Academy of Sciences; k.t.n. V.K. Papisov, head of the Economic Sector of IVP; d.t.n. S.A. Pegov, laboratory chief of VNISI of USSR Gosplan and the USSR Academy of Sciences; V.P. Prokofyev, junior scientific associate of IVP AN SSSR; d.t.n. V.G. Pryazhinskaya, sector head of IVP AN SSSR; R.L. Rayatskas, corresponding member of the LiSSR Academy of Sciences, department head of Vilnius State University; d.b.n. [doctor of biological sciences] N.F. Reymers, senior scientific associate of TsEMI; d.yu.n. [doctor of legal sciences] G.G. Rozovskiy, department head of the Voroshilovgrad Branch of the Industrial Economics Institute of the UkSSR Academy of Sciences; k.t.n. S.M. Rokhlin, sector head of VNIIOENG [All-Union Scientific Research Institute of the Organization, Management, and Economics of the Petroleum and Gas Industry] of Minnefteprom; G.Yu. Smykovskaya, candidate of architecture, senior scientific associate of TsNIIgradostroitelstva of USSR Gosgrazhdanstroy; d.e.n. Yu.V. Sukhotin, senior scientific associate of TsEMI; k.e.n. A.G. Terekhov, deputy director of NIPIIN [Scientific Research Institute of Planning and Standards] of USSR Gosplan; d.g.n. [doctor of geological sciences] B.S. Khorev, laboratory chief of MGU; d.t.n. Yu.A. Chernegov, department head of SOPS of USSR Gosplan.

The meeting was opened by N.P. Fedorenko, member of the academy. Following an address which reviewed the responses to the questionnaire, speeches were delivered by the participants in the round-table discussion. The statements made, including those submitted in writing, are being published in abridged form.

Introductory Address: N.P. Fedorenko, member of the academy, member of the Presidium of the USSR Academy of Sciences, editor-in-chief of the journal *EKONOMIKA I MATEMATICHESKIYE METODY*, chairman of the Scientific Council of the USSR Academy of Sciences for the Comprehensive Problem "Optimum Planning and Management of the Economy"

The term "natural resource conservation" [prirodopolzovaniye] has all sorts of meanings. It is a school subject, it is studied in VUZ in the course in geography, dissertations are defended and books written about its problems, and there have been articles on it in encyclopedias. The section of the new version of the CPSU Program on the party's social welfare policy straightforwardly

sets the task: "The party deems it indispensable to strengthen control over the employment of natural resources and to disseminate greater public awareness of ecology" ("Materialy XXVII syezda KPSS" [Materials of the 27th CPSU Congress], Moscow, Politizdat, 1986, p 155).

The term "natural resource conservation" came into currency at the end of 1958 in a joint session of the USSR Geographic Society, the Moscow Naturalists Society, and the All-Russian Natural Conservation Society. Yu.N. Kurazhskovskiy presented a paper on creating this new scientific-practical discipline. The biologists were the originators of the term "natural resource conservation." But as soon as it appeared people immediately began to talk, though not in very professional language, about the economic foundations of natural resource conservation, and the term "conservation economics" was first used in 1964 at a joint conference of the philosophical (methodological) seminars of the USSR Academy of Sciences, and it was reinforced in the book "Priroda i obshchestvo" [Nature and Society] (Moscow, Nauka, 1968).

Scientific natural conservation is comprehensive in nature and cuts across sectors. Conservation economics was first used as a term in the writings of biologists and geographers and, however strange it might seem, by the economists last of all. Yet it seems that we economists think more than the biologists do about ecology in its present general scientific meaning. We are concerned with the problems of "ecologization" of planning, the problems of ecological-economic substantiation of economic decisions, and the problems of ecological violations in the environment, indeed even with the protection of nature.

Social reality urgently demands a stewardly attitude toward natural resources. Natural resources do not fit within the framework of any one "-logy," "-nomics," or "-graphy." The reproduction of natural resources and, if one is permitted to put it this way, the reproduction of man, of his life and health, have become not merely equivalent components of the development of the productive forces of society and elements of the economy, along with the extractive and manufacturing industries, the agroindustrial complex, transportation and communications, but a new social requirement which people are not sufficiently aware of.

In economic terms this does not mean billions, nor even tens of billions, but hundreds of billions of rubles consisting of capital outlays and current costs, not to mention the national wealth. In the language of sociology it means practically the entire social and medical health, the health of society as a whole, both our own and that of future generations. These problems have been treated in VOPROSY FILOSOFII (in the seventies) and in other publications, and since 1973 they have been covered in the journal EKONOMIKA I MATEMATICHESKIYE METODY.

Our country's achievements in the protection of nature are indisputable. But the need for radical changes in the field of natural resource conservation, for a radical improvement of its management, is also indisputable, and this has been emphasized in the documents of the 27th party congress. In this sphere, as indeed everywhere, the gap has to be closed between words and deeds.

Progress has not been great in this field, in our opinion mainly because we scientists have not been able to answer the vitally important questions posed by practice. So far there is no integral conception of natural resource management [upravleniye prirodopolzovaniye], and the function of regional and sectoral management of this sphere has not been clearly "delineated." Consequently, as soon as reference is made to specific delimitation of management functions between the proposed all-union and regional committees for natural resource conservation and the existing departments, we are unable to provide solutions which are really substantiated in all respects. Yet after all the range of proposals here, as is well known, is very broad--from concentration of only oversight functions in the committees all the way to turning them into giant ministries for the reproduction of natural resources. It is clear that an effective practical solution cannot be expected to this problem when the level of its scientific treatment is at that level.

Or another question which may be still more important--the "economic climate" for resource conservation. We are all unanimous in the opinion that the present "climate" is unfavorable to the practical implementation of conservation of measures--as a rule they are economically unprofitable for enterprises. But here again an integral conception of the problem's solution is lacking. Clearly we cannot follow the well-trodden path on which the number of indicators planned for enterprises on a directive basis is reduced precisely at the expense of assignments concerning natural conservation. Fund-forming indicators must be directly related to the level of activity in natural conservation.

Thus it is a question of instilling in enterprises an economic motivation to look not only to the short-term results, but above all to the long-term results of economic activity.

In our view it has in fact been the failure to solve this problem that has held up the application of economic methods of management to the practice of natural conservation.

And last of all. Can one imagine the management of, say, the chemical industry if we were to evaluate its development solely in terms of "better" and "worse"? But in fact that is the situation in evaluating the results of the natural conservation effort. We still do not have a system of summary indicators for determining the state of the natural resource potential. Although every year we spend nearly 10 billion rubles for natural conservation and improvement, in essence we still do not know what in reality is taking place with respect to this most important element of the national wealth. An appropriate system of standards of measurement of the results of efforts made at natural conservation has not yet been worked out. Yet none of the links of the economic mechanism is secondary from the standpoint of its impact on the final result. This is a good place to mention V.I. Lenin's metaphor: "If you need an iron chain to hold something which weighs, say, 100 poods, what will you get if you replace one link of that chain with one made of wood? The link will break. The fact that all the other links in the chain except that one are strong or unbroken does not save the situation. If the wooden link breaks, then the entire chain will break" (V.I. Lenin, "Poln. sobr. soch.," Vol 32, p 201).

I do not wish to tie down the thinking of participants in the round-table discussion by rushing forward and by imposing any sort of ready-made formulas. Their development, or actually their original definition, as is usually the case in "brainstorming" is our task today.

There is no doubt that the responses from participants in the round-table discussion to the questionnaire which our editors sent out in advance will help us in this.

In opening this round-table discussion, I want to wish all the participants success in their effort and express the hope that we will find, as we repeatedly have in the past, the right way of solving the most complicated intersector and I would even say general-scientific problems of natural resource conservation. We have been pointed in that direction by the 27th CPSU Congress, which stressed that "science is playing a growing role in development of the productive forces and in the improvement of social relations, in creation of fundamentally new types of equipment and technology, in raising labor productivity, in developing the resources of the earth, ocean, and space, and in protection and improvement of the environment" ("Materialy XXVII syezda KPSS," Moscow, Politizdat, 1986, p 167).

It is our duty to perform the tasks we have been set.

Follow of Responses of Participants in the Round-Table Discussion to the Questions on the Questionnaire: K.G. Gofman, doctor of economic sciences, laboratory chief of TsEMI; Yu.V. Ovsienko, doctor of economic sciences, laboratory chief of TsEMI

1. What is meant by natural resource conservation [prirodopolzovaniye] as an object of management? What are the subject matter and tasks of the economics of natural resource conservation as a scientific discipline?

The terms "resource conservation economics," "economic (socioeconomic, ecologic-economic) problems of resource conservation" have been constantly encountered in the scientific literature and normative documents since the early seventies. Today a new field of knowledge is taking shape at a meeting point between sciences. The outlines of this discipline and what it studies have not been treated identically by the participants in the discussion.

Resource conservation, in the opinion of R.L. Rayatskas, is an activity related to the employment, protection, and reproduction of natural resources. L.F. Reymerz sees it as the sum total of all forms of employment of the natural resource potential and of measures to preserve it. Many other participants in the discussion take up positions close to these, whose essence is the treatment of natural resource conservation as the process of interaction between social reproduction and the natural environment.

But A.G. Terekhov points out that the exploitation of nature, i.e., the satisfaction of society's needs by virtue of the potential possibilities afforded by nature must be regarded as an entity to be managed for economic activity as a whole. Only the processes aimed at conservation and augmentation of nature's

potential possibilities, which are nothing other than protection of nature, should enter into the concept of resource conservation as an independent entity to be managed. In this context natural conservation includes not only the actual preservation and maintenance of nature's potential capabilities, but also measures making it possible to achieve the same results by reducing the scale and intensity of resource employment in the narrow (literal) sense. V.I. Kotlyar holds an analogous point of view, believing that maximum economy of natural resources and the reproduction and augmentation of natural resources are the entity to be managed in the sphere of natural resource conservation, which embraces the entire totality of the social processes involving nature.

It is no simple matter to break down natural conservation as an entity to be managed within the context of economic activity. This problem has to be solved not only in order to systematize the key concepts of the new scientific discipline, but also--and this is far more important--to shape an effective system for managing what in the state plan is referred to as "Environmental Protection and Optimum Employment of Natural Resources." In speaking on the subject of the economics of resource conservation as a scientific discipline, V.R. Vesnin calls attention to the fact that not only production relations, but also the productive forces should be included here. He emphasizes that conservation economics cannot become a full-fledged science until a political-economic conception of the interaction between society and nature is created.

The basic tasks of the economics of natural resource conservation, formulated by V.I. Gurman, M.Sh. Nudelman, V.K. Papisov, S.M. Rokhlin, B.S. Khorev, and many others, come down to these:

- i. development of an economic mechanism for implementing (stimulating) measures to improve natural resource conservation;
- ii. creation and application of criteria of national economic effectiveness of measures to protect nature and conserve resources;
- iii. development of methods of economic evaluation of all the consequences (results) of such measures;
- iv. economic appraisal of natural resources;
- v. improvement of the data base organization and support in the field of environmental protection.

The urgency of these tasks is obvious. At the same time, as noted by many participants in the discussion, the scale on which research has been organized and specialists in conservation economics have been trained is clearly inadequate. In the opinion of N.F. Reymers, an example can be seen in the closing down of the Department of Economic Problems of Natural Resource Conservation within TsEMI, which was the only one of its kind in the system of the Academy of Sciences. The economics of natural resource conservation does not occur in the list of VUZ specializations; departments for the economics of natural resource conservation are the rarest exception in universities and economic VUZs.

2. What requirements should be met by a long-range nationwide program for the protection and optimum use of natural resources?

Improvement of resource conservation is at the same time the goal and the precondition for accelerating the country's socioeconomic development. Pursuant to the decree of the 3d Session of the USSR Supreme Soviet, 11th Convocation, the Long-Range State Program for Environmental Protection and Optimum Use of the Natural Resources of the USSR is to be drafted. All participants in the round-table discussion note the fundamental importance of this program to devising an integral economic mechanism for resource conservation. This has to be a program with the same rank and significance as the Food Program and the Energy Program.

This program, writes Yu.A. Chernegov, is called upon to furnish scientifically sound criteria of the state of the environment and an optimum system of natural resource conservation within periods of time acceptable to society and taking into account the realistic economic possibilities and achievements of scientific-technical progress.

The point of departure for such a program, in the opinion of A.G. Terekhov, must be a straightforward definition of the state of the natural resource potential which is to be achieved, and it must above all envisage all the possibilities related to optimization of economic activity in the context of natural resource conservation. Methods have to be devised for evaluating the natural resource potential as the natural resource component of the national wealth.

V.M. Kotlyar emphasized that the long-range program must provide for "ecologization" of society's entire vital activity and of education and upbringing first of all.

A number of participants in the discussion objected to the traditional separation of the terms "protection" and "optimum exploitation" of natural resources. In the stage of acceleration of the country's socioeconomic development, the documents of the 27th CPSU Congress point out, resource conservation becomes not only the principal physical source of economic growth, but also the main factor in protection of nature. That is why, as A.A. Arbatov has rightly observed, in the long-range view the protection and optimum use of natural resources constitute a tautology.

G.S. Gold, G.I. Zaykov, Yu.V. Sukhotin, N.F. Reymers, and others emphasize the need for full implementation of the principles of target-program management in shaping the long-range program. It must contain a comprehensive description of the present state of the country's natural resource potential and of the effectiveness of its employment, a system of quantifiable indicators, ranked with respect to the time required, of the social-ecological goals of improving natural resource conservation in regional and sectoral breakdowns, an interrelated set of sectoral, scientific-technical, and regional subprograms guaranteeing achievement of the goals set, the requirements with respect to the resources to support those goals, and finally, a subprogram for improvement of the system for management of natural resource conservation.

In the opinion of M.I. Krayeva, within the program subprograms should be distinguished for unique objects of nature and territorial-production complexes (TPK's) formed under the specific conditions of the environment--the contact zones of land and sea, and so on.

O.F. Balatskiy presented interesting information on the drafting and implementation of a comprehensive target program "Environment" in Sumy Oblast. This program, which was drawn up on the initiative of the Sumy Oblast Committee of the CPSU, embraces the 11th Five-Year Plan and the period up to the year 1990 and includes the following goals: reduction of emissions into the atmosphere and subsequent stabilization at a permissible level conforming to standards; maintenance of water consumption at the 1980 level and its reduction after 1985; growth of the volume of reprocessible solid waste 3.5-fold by 1985 and 7-fold by 1990 as compared to the base year 1980. In all, 291 measures were prepared for the oblast's 18 rayons and at 134 enterprises so as to fit into the system of goals. Performance of the program during the years of the 11th Five-Year Plan made it possible to substantially improve the state of the environment in the oblast.

The average annual economic benefit from natural conservation and resource conservation measures to protect the environment during the 10th Five-Year Plan as a whole was almost 6 million rubles for Sumy Oblast. During the 11th Five-Year Plan, thanks to the program's existence, the economic benefit was already about 20-25 million rubles and could have been substantially higher. The following "bottlenecks" restricting the effectiveness of the program's implementation became evident: the system of data base organization and support was in need of improvement in the oblast (and even more the region); it was difficult to find that mix of the program's measures that was the economic optimum, so that the intuition and experience of specialists had to be resorted to; a system had not been worked out for management of the program's performance; there was no economic mechanism for carrying out programs, only organizational and administrative measures of party and Soviet authorities and agencies for monitoring the quality of the environment were used; popularization of ecological knowledge has been inadequate; the system of ecological education of key figures at the top and middle levels of associations, enterprises, kolkhozes, and sovkhoses has been imperfect or nonexistent.

3. What sort of normative acts should supplement the present system of legislation in the field of natural resource conservation? Which of the normative acts are in need of substantial improvement?

4. How do you see the stage-by-stage process of improvement of the system of agencies for management of natural resource conservation?

5. What are the most important directions for improvement of the monitoring, recordkeeping, and data base organization and support of natural resource conservation?

It is no accident that these three questions have been lumped together. The economic mechanism of optimum resource use is based on the organizational-and-legal foundation of natural conservation and resource conservation efforts and

can be improved only in conjunction with the development of legislation, managerial functions, and organizational structures in this sphere. That is why the participants in the round-table discussion have rightly paid attention to these problems.

As we should expect, the majority favored creation of a specialized nationwide body for management of natural resource conservation. But the range of judgments on this question is quite wide and indicates not only its urgency, but also its complexity and the insufficiency of the treatment it has received.

L.A. Melentyev, member of the academy, feels that the nationwide "Natural Resource Conservation Committee" is needed; it would be made up of an extremely small number of highly qualified specialists, and at the same time there would be well-organized interdepartmental inspectorates for protection of the system's basic elements.

N.F. Reymers on the other hand asserts that this kind of nationwide body must not merely monitor and must not even merely manage, but should in fact carry out projects for the preservation and reproduction of natural resources (on its own or through specialized departments).

The problem still remains of substantiating the range of functions of this body, its interaction with existing departmental services for natural conservation (none of the participants in the discussion disputed the need to preserve the sectoral services for natural conservation).

B.G. Rozovskiy's position deserves attention in this regard. He feels that reducing improvement of the management of natural resource conservation mainly to creation of a state committee for natural conservation is like trying to build the roof without the foundation or the house itself. A more promising way is to begin with the primary units. At present enterprises are assigned standards governing the maximum permissible emissions (PME), and they are ordered to check their observance in accordance with the GOST. However, the results of research as well as experience in the courts indicate the need to monitor what is being done by the natural resource conservation subdivisions of enterprises. It is advisable to take natural resource conservation subdivisions out of the jurisdiction of the enterprise management and transfer them to the corresponding departments of ministries and ultimately to local soviets with broader powers and to the projected state committee for natural conservation. The natural resource conservation subdivisions themselves should be oriented not only toward coordination, but also to the functions of monitoring and general supervision of the effort at natural conservation. A body is needed that would possess full enough authority to solve resource conservation problems in the region. Soviets of people's deputies should be that body provided their powers are not limited, as is now the case, to monitoring only the enterprises of local industry. The solution to the problem is to transfer to local soviets the powers to manage natural resource conservation efforts of all enterprises located within their jurisdiction. Unless an effective system is organized for management of environmental protection at the local level, recommendations for setting up an all-union committee lose all meaning.

G.V. Veropayev takes a similar point of view. The "possessors of resources," in his opinion, should be local soviets, and all regional natural resources should be transferred to their balance sheets. The users of the resources would be individual enterprises or associations in the industrial sector, the agroindustrial complex, transportation, municipal services and utilities, and the field of culture. Resource use must be on a contract (rent) cost-accounting (khozraschet) basis. At the same time better conditions would be created for developing the initiative of the local population in working out strategic solutions and in carrying out practical measures for environmental protection, optimum employment of natural resources, and in general for improvement of people's living and working conditions and higher efficiency of social production. Performance of such measures takes a lengthy time and requires extensive and complicated work on methods and practical effort to inventory and evaluate natural resources and to use those compilations under real conditions. That is why it is important to define a definite sequence of steps in developing the necessary transformations.

Kh.V. Luyk feels that the union republic must be the basic level for management of natural resource conservation and that its agencies should be given not only the functions of monitoring and coordination, but also those of reproduction of the relevant resources, including the material-and-technical or other production support. He emphasizes, as do many others, the need for a single nationwide law on protection and optimum use of natural resources. Once the laws have been adopted on the various particular resources, Kh.V. Luyk remarks, it becomes more complicated to protect natural resource complexes and nature as a whole.

A.G. Terekhov calls attention to the absence of normative acts regulating the planned management of environmental protection. Particularly disturbing, in his opinion, is the delay in approving the system of classification of types of natural conservation activity, which, to be specific, makes the planning of outlays for natural conservation highly tentative. The classification must become the initial systematizing element in organizing recordkeeping and monitoring both of natural conservation activity itself and also of the costs and results related to it.

While attributing great importance to the managerial function of monitoring the state of the environment, most of the participants in the discussion criticized the present system of recordkeeping, monitoring, and data organization and support of natural resource conservation. S.A. Zepov favors formation of a system of state monitoring that would be organizationally and economically separate from the activity of the spheres of social production whose activity is what is being monitored. Yu.V. Sukhotin adds that those who do the monitoring must be given enough power to put a stop to any acts which are detrimental to the natural environment. There has to be expert evaluation of major projects for natural resource conservation on behalf of the public and in the context of the broadest publicity.

V.N. Lopatin proposes that an effective monitoring system could be created on the basis of the ecological departments of Goskondromst. Organizing the interaction of these services with analogous subdivisions of other departments

is the basis of a unified automated system of observations and of monitoring the state of the environment. It should be designed to obtain, collect, transmit, process, store, and present data on the retrospective, current, and forecast state of the environment as well as for making recommendations to users on the basis of relevant criteria for evaluation of the correctness of extraction of natural resources concerning the performance of national economic measures aimed at optimization of society's relations with the environment.

6. What are the basic directions for improvement of the body of norms and standards for management of natural resource conservation? Which standards and types of standards do you feel should be developed first? What are the principal tasks in improvement of the system and methods of substantiating state standards in the field of natural resource conservation?

The existence of a body of standards embracing the optimum parameters of the ecologoeconomic systems is extremely important to effective management of natural resource conservation, especially in connection with the long-range and multiaspect character of the consequences of decisions taken in this sphere. The present system of standards (GOST's, the standards of the PDK's [maximum permissible concentration], and the PDV's) was found to be quite imperfect by the participants in the round-table discussion. It needs to be developed both in the direction of comprehensive scientific substantiation of the indicators subject to the standards as well as the setting of standards for other characteristics of natural resource conservation.

Many specialists hold in common the position that standards of the nature-intensiveness of production (consumption of raw materials, water, and so on) and of loads on the environment (after the pattern of the PDV, VSV [scheduled emission]) should be emphasized in the system for management of natural resource conservation. In the opinion of A.V. Bykhovskiy, standards pertaining to the self-purifying ability of the components of nature should be worked out.

G.Yu. Smykovskaya believes that in addition to the standards of environmental quality (PDK's, PDU's [maximum permissible level], and so on) it would be desirable to be guided by standards of the adequacy of natural and ecological resources (relative to population)--park areas, recreational areas, etc., which provide agreeable conditions for the life of the urban population.

The principal deficiency in the present GOST's pertaining to natural conservation, in the opinion of B.G. Rozovskiy, is their lack of criteria for evaluating the effectiveness of the effort of natural conservation subdivisions.

The present rules governing establishment of standard PDK's of pollutants and even PDV's into the environment for branches and enterprises make no provision whatsoever for economic substantiation of those standards. The writing of standards in the field of natural conservation should, in the opinion of a number of participants in the round-table discussion, embrace the terms and concepts and types of natural resource conservation and a multilevel system of indicators of the state of the environment and of natural resources, as well as models and methods for planning computations. The principal task in the

writing of standards is to devise and apply an effective and integral system of standards for all types of natural resource conservation that would be mutually consistent and would also be adjusted to the realistic capabilities of economic activity. State standards must be attainable in practice and must be unfaithfully observed--this natural requirement is not always met by GOSI's pertaining to natural conservation. The substantiation of state standards must become comprehensive in nature and take numerous factors into account: hygiene, engineering, economics, regional aspects, etc. In many cases a painstaking inventory of regional features is an important method of improving the effectiveness and economic justifiability of the standards approved. To be specific, it is advisable to have zonal differentiation of standards governing the air quality of settlements as a function of the type of functional use of the urbanized area and the scale of the impact of ecologically significant factors on it.

7. How are preplan ecologoeconomic substantiations to be made more effective (forecasts of the change of the natural resource potential, comprehensive regional charts of natural conservation, and so on)?

In order to perform this task, Kh.V. Iuyk believes, the preparation of preplan ecologoeconomic substantiations must become an integral part of the process of drawing up the plan. However, judging by the other responses, the prevailing point of view is that the importance of preplan substantiations as an independent stage in national economic planning needs to be strengthened. The way to make them more effective, V.K. Papisov stresses, is to synchronize them with the respective planning indicators and to work out different versions for solving the problems of natural resource conservation and divide efforts into stages.

Most of the judgments on this question pertain to the comprehensive regional charts for environmental protection (TerKSOP's), on which the drafting work is now being done on a very large scale. In the opinion of A.G. Terekhov, the TerKSOP should be given the official status of a preplan document, and they should be regarded as a variety of comprehensive national economic target programs. It is noted in the responses of K.B. Lvovskaya and Yu.A. Chernegov that in 1985 the preparation of draft versions of general methods of compiling TerKSOP's for TPK's (SOPS of USSR Gosplan), oblasts and cities (TsNIIPgrado-stroitelstva) was completed in 1985; in them the TerKSOP's satisfy the requirements indicated above. (Footnote 1) (When applied to cities, the document is referred to as regional comprehensive chart for environmental protection (TKS00S))

In prior recommendations on methods of compiling the TerKSOP's due attention was not paid to the problems of economic substantiation, so that the Achille's heel of almost all draft charts has been the neglect of the real limitation on financial and physical resources. As a consequence the anticipated outlays to carry out the relevant measures have quite often exceeded several times over the expenditures allowed for comprehensive socioeconomic development of the region over the period covered by the project.

The main difficulty in defining the totality of ecologically oriented measures which are optimal under the conditions of limited capital investments consists of constructing a strict procedure for ranking the measures with respect to their ecologoeconomic efficiency. The overcoming of this difficulty, combined with consideration of alternative versions for financing the program, serves as the most important direction for increasing the effectiveness of the TerKSOP's.

Another essential point which has equal importance in practice is the orientation of the project developers (and according to the method of *IsNIIpgrade-stroitelstva* an organization of USSR Gosstroy must be the general developer) toward planning agencies as the principal users of the document. To that end there is a need for mutual linkage of the output data of the scheme to the system of planning indicators, including the development of new forms of statistical reporting that meet the needs of the TerKSOP.

B.S. Khorev feels that the TerKSOP's interrelationship with comprehensive regional land use planning of the area should be strengthened, taking advantage of the experience of BSSR, where for the first time at the level of the republic a master chart is being drafted for comprehensive regional organization of the region on the basis of the trinity "nature--population--production," in which the problems of optimizing the ecological situation have been reflected extensively.

8. What are the basic directions and paramount tasks in improving the organization and methodology of planning natural resource conservation?

This question, which has rightly been at the center of attention of participants in the round-table discussion, has been broken into seven subpoints because of its complexity and many-sidedness.

8.1. What indicator should be used to measure the final results of natural resource conservation?

Development of a system of indicators of the results of natural conservation and resource conservation efforts is a task of paramount scientific-practical significance. The final results of natural resource conservation should above all themselves become indicators planned on a directive basis--that is the unanimous outcome of the discussion. Otherwise it is not possible to carry out the decisions of the 27th CPSU Congress concerning higher effectiveness of centralized guidance of the economy. But present-day practice in planning environmental protection and optimum exploitation of natural resources really does not have in its arsenal units by which to measure the qualitative characteristics of the ecologoeconomic system.

At the same time the opinion of participants in the discussion about what is meant by the final results of natural resource conservation differ widely. A.A. Arbatov believes that in this case it is a question of satisfying the needs of society for natural resources while maintaining the standard quality of the environment at minimum cost. A.A. Bykhovskiy defends the "anthropocentric character" of the final results of natural conservation efforts, and he

proposes that they be measured in terms of the factor by which the standards established for man or other socially significant entities have been exceeded. In the opinion of S.M. Rokhlin, the system of final results based on "ecological standards" should be supplemented with indicators of economic efficiency, among which priority should be given to marginal (zamykayushchiye) costs. Kh.V. Luyk gives preference to specific rates of consumption of the "natural substance" per unit output. V.R. Vesnin adds that the indicator of nature-intensiveness in all its specific forms should be made a fund-forming indicator if possible. He was joined on this point by V.M. Kotlyar.

According to A.G. Terekhov, the state of the country's natural resource potential is the result of natural resource conservation. Detailing this viewpoint, O.F. Balatskiy, A.A. Gusev, I.G. Levina, and others paid great importance to aggregating environmental quality indexes for particular elements and territorial units. I.G. Levina cites among the important virtues of these indicators their direct connection to calculation of the consolidated evaluation of the economic efficiency of the scale on which natural conservation measures are carried out.

The final results must be the principal criterion in evaluating the efforts of departments engaged in improving natural resources. For example, for Minvodkhoz, in the opinion of L.A. Melentyev, member of the academy, this would be achievement over a period of 3-5 years of the rated (calculated) yield on improved land, including, of course, "dry reclamation"; when the agroindustrial industry is a client and it is possible to obtain a loan from the bank, this appraisal of Minvodkhoz activity as a function of the results achieved seems realistic enough.

Within the system of indicators of the final results of natural resource conservation an important place ought to be occupied by value units of measurement, which make it possible to evaluate the economic benefit to the national economy from performance of measures to improve this process. Many participants in the discussion pointed out the need to use them, but this point of view was represented most consistently in the responses of A.A. Gusev and R.L. Rayatskas. In the opinion of A.A. Gusev, the indicator of the economic loss from pollution of the environment, computed as the sum of the estimated national economic costs of prevention and compensation of its adverse impact on recipients. R.L. Rayatskas feels that the final results of natural resource conservation are expressed in the reduction of the costs of pollution, which in turn must be measured by the size of the end product obtained as a consequence of diversion of resources to environmental protection, to prevention, and to compensation of the adverse effects of deterioration of the quality of the environment. Both viewpoints deserve attention. Moreover, specific research has discovered that the criteria for optimizing ecologoeconomic development which correspond to these approaches operate in the same direction.

(Footnote 2) (K.G. Gofman and A.A. Gusev, "On Certain Matters Under Discussion Concerning the Methodology of Optimizing Natural Resource Conservation," *EKONOMIKA I MAT. METODY*, Vol 21, No 4, 1985; A.A. Gusev and O.S. Varlamova, "Macroeconomic Analysis of Ecologoeconomic Processes," *EKONOMIKA I MAT. METODY*, Vol 22, No 2, 1986) Whether preference should be given to determining the ecological costs (one component of which is the damage) in terms of "costs" or "end product" depends on the type of specific economic task.

8.2. What are the basic directions for improving the methodology of ecologic-economic substantiation of economic decisions?

8.3. What is your opinion on the present practice of economic evaluation of natural resources and the damage resulting from ecological violations of the environment (the sphere of improvement of these indicators, ways of improving the methodology of their computation)?

8.4. Your opinion on the indicator of marginal costs of the output of natural resource extractive branches as an instrument in substantiating planned projects?

These questions are lumped together, since the answers to them turned out to be interrelated: Most of the participants in the round-table discussion see the gaps in the methodology of ecologic-economic substantiation primarily in the area of elaborating and applying economic estimates of natural resources and of the state of the environment.

In the years of the 11th Five-Year Plan methods of economic estimation of natural resources using the indicator of marginal costs and determining the economic efficiency of natural conservation measures by computing the economic loss from pollution of the natural environment were vigorously introduced in the practice of these justifications of planned projects. (Footnote 3) ("Vremennaya tipovaya metodika ekonomicheskoy otsenki mestorozhdeniy poleznykh iskopayemykh" [Temporary Model Method for Economic Evaluation of Mineral Deposits], Moscow, GKNT, Goskomtsen, 1980; "Vremennaya tipovaya metodika opredeleniya ekonomicheskoy effektivnosti osushchestvleniya prirodookhrannykh meropriyatiy i otsenki ekonomicheskogo ushcherba, prichinyayemogo narodnomu khozyaystvu zagryazneniyem okruzhayushchey prirodnoy sredy" [Temporary Standard Method of Determining the Economic Efficiency of Performance of Natural Conservation Measures and Estimation of the Economic Loss Inflicted on the Environment by Pollution of the Environment], Moscow, USSR Gosplan, USSR Gosstroy, and the Presidium of the USSR Academy of Sciences, 1983. For more on the factor principle see "Vremennaya tipovaya metodika" [Temporary Standard Method], 1983) The overwhelming majority of participants in the discussion noted the need to use the indicator of marginal costs of the output of branches exploiting natural resources in calculations on planned projects. S.M. Rokhlin even feels that development of practical methods of economic evaluation of deposits using marginal costs is the principal achievement of economic science in the domain of natural resource conservation. At the same time, as pointed out by Yu.V. Sukhotin, the set of instruments of marginal costs can be a reliable reference for economic decisions, even if those instruments are defined within the limits of an integral system of optimization computations on the scale of the economy.

A.M. Bybochkin believes that the present practice of economic evaluation of natural resources furnishes on the whole a correct geological-economic appraisal of deposits and takes into account the loss from ecological disruptions of the environment. In his opinion, the parameters of the condition (quality standards) of the mineral raw material and fuel, when stocks of minerals are being estimated, should be calculated not with respect to marginal

costs, but on the basis of more stable wholesale prices. Marginal costs need to be used in determining whether reserves are to be included in the balance, but the evaluation of the advisability of working the deposits on the balance (or those with low profitability) should be determined on the basis of wholesale prices.

A.A. Arbatov believes that the use of marginal costs as an indicator for substantiating the activation of new extractive capacities with poor technical-and-economic conditions for attainment of rated capacity and production does not contribute to intensification of the economy. His position is that marginal costs are most useful and have the greatest importance to the national economy in intersector analysis of the comparative effectiveness of alternative measures.

N.N. Lukyanchikov presented specific examples confirming the need to take marginal costs into account in choosing among variants for developing ores of ferrous metals.

Against the background of the use of marginal costs in planned-project substantiations for developing deposits of minerals, which on the whole has been constructive, it is quite understandable that many people should want to speed up approval of a method of economic evaluation of other very important natural resources, the draft of which was prepared long ago.

The present procedure for approval of methods was subjected to justified criticism by B.G. Rozovski, who pointed up an intolerable situation--the existence of two or more mutually exclusive normative documents for computing one and the same economic indicator. For example, the method of subtracting losses inflicted on the state by a violation of water legislation, approved by Gosplan, Minvudkhov, and Minfin (1983), is not in conformity with the Temporary Standard Method (1983). Improvement of the procedure for approval of methods pertaining to specific types of natural resource conservation in order to achieve general methodological uniformity is a necessary condition for improving the ecologoeconomic soundness of economic decisions.

Many participants in the discussion, who did not cast doubt on the methodological basis of the new normative documents concerning the ecologoeconomic substantiation of decisions concerning planned projects, pointed to the need for further improvement of these documents in the direction of greater reliability of the indicators used and better compatibility among them. Diverse criticism in this connection was directed toward the Temporary Standard Method (1983).

R.L. Rayatskas believes that since the economic loss from pollution is in actuality reflected even now in the indicators of production costs, the shortfall of output should be calculated on the basis of an "ecologically pure" production function estimated for appropriately adjusted dynamic series of the factors of production. (Footnote 4) (For more detail on this see R.L. Rayatskas, L.P. Chyakanavichyus, and V.Yu. Radushis, "On a Methodology for Estimation of the Economic Costs of Environmental Pollution," *EKONOMIKA I MAT. METODY*, Vol 21, No 4, 1985) This principle is rather debatable. The reason is that the proposed "ecologically pure" production function intended for

calculation of the "potential" end product describes an unreal situation when there are neither outlays for natural conservation nor pollution of the environment; that is why it is hardly legitimate to equate the difference between the "potential" and "actual" end product with the "economic loss."

As is evident from the responses, the section of that method devoted to economic estimation of the loss from pollution of water resources is in need of the most serious additional work. V.P. Prokofyev, who emphasized the hopelessness of the economic estimates obtained, thinks it is advisable to rank water conservation measures without bringing in calculations of the loss prevented, using the provisional indicator of the comprehensive load on water resources.

Yu.A. Chernegov argued in favor of the need for radical improvement of methods of determining the economic efficiency of capital investments in measures related to natural conservation. He feels that investments in construction of treatment plants "are made mainly in the heavy industries which have done most to pollute nature, but prevention of damage is mainly achieved close to the end product." The method now in effect does not take into account the influence of the higher cost of the product in heavy industries (related to the construction of treatment facilities) on the overall level of costs in the economy, and as a consequence the efficiency of treatment facilities is too high, while at the same time the effectiveness of low- and no-waste technologies is set too low.

While not denying the importance of taking into account the national economic consequences of local changes in costs and results (above all in the substantiation of large-scale measures), it should be noted that this method does not require that records be kept on higher prices in related branches because of construction of treatment facilities, but at the same time it also does not take into account the lower cost of output in related branches because of reduction of pollution (for example, the output of the processing of agricultural raw materials is cheaper because of the lower costs of their production thanks to natural conservation measures). Of course, comparing the full additional costs of natural conservation measures to the full additional result of their performance (the damage prevented) could yield a more objective estimation of their efficiency. (We are leaving to one side the question of the practical feasibility of such computations.) But there is no basis whatsoever for supposing that a comparison of direct costs to the direct result distorts the relationship between the effectiveness of treatment facilities and resource-saving technologies. On the contrary, the calculations available demonstrate as a rule the higher economic efficiency from the standpoint of the national economy of resource conservation as compared to single-purpose pollution-control measures.

By way of summing up the discussion of the Temporary Standard Method (1983), O.F. Balatskiy notes that it has certain deficiencies and debatable principles, but that that is not the main thing at present. Maximum use needs to be made of the existing methodological foundation. He relates improvement of the methodology for ecologoeconomic substantiation to development of a general method for determining the economic efficiency of economic decisions. Partial

methods should state the general recommendation in concrete terms pertaining to the specific nature of the results and costs of natural conservation efforts.

In the opinion of K.B. Lvovskaya, there is a need to increase the comprehensiveness of ecologoeconomic substantiation of decisions on planned projects, i.e., that if possible all the results of carrying out multipurpose natural conservation measures should be taken into account. One of the arguments used is that in current practice of solving the ecological problems of the region (specifically in drafts of the TKSOS's of cities) ecologically oriented measures with a broad range of social consequences are playing an ever greater role, and they need to be ranked on the basis of integral economic estimates of the results and the costs.

8.5. What is meant by "ecologization" of the planning and management of the economy? What are the peculiar features of socioeconomic and ecological criteria of the effectiveness of economic decisions; what are the possibilities of combining and coordinating them, and what are the limits on this?

Almost all the participants in the round-table discussion were unanimous in the opinion that "ecologization" of planning and management of the economy signifies taking ecological criteria into account on an equal par with economic criteria in the process of taking economic decisions. In developing this line of argument G.I. Zaykov pointed out that there is no objective basis for setting socioeconomic and ecological criteria against one another in evaluating the effectiveness of economic decisions, since under the conditions of present-day production ecological criteria are taking on a quite evident social importance. The task is to harness all three of these criteria of efficiency (social, economic, and ecological) together, which is realistically possible only on the basis of homogeneous value (money) indicators.

Many participants in the round-table discussion noted the need for "ecologization" of planning by applying effective methods of mathematical economics and models for management of natural resource conservation. G.S. Gold emphasized that it is an intolerable situation when many practitioners and scientists ignore achievements and capabilities of optimum planning. As a consequence the economy suffers great damage, calculated in the hundreds of millions of rubles for each major mineral and raw materials branch. But still greater loss is inflicted on the sciences of natural resource conservation as such if they refuse to use the apparatus of optimum planning in order to discover resource alternatives, to become aware of them, and to make economic evaluations of them in a systematic way.

As noted by V.G. Pryazhinskaya, the most complex problem in the "ecologization" of planning is constructing functions for estimation of efficiency for ecologoeconomic systems. To take the conditions of natural conservation into account only as constraints is to narrow the field of defining that function to a subset, where its change with respect to purely natural arguments is a quantity that can be neglected compared to the variation based on economic parameters. On a broader scale "ecologization" of planning, in the opinion of S.A. Pegov, consists of viewing the natural environment and social production as a single

entity to be managed from the standpoint of substantiation and achievement of long-term stable development--ecodevelopment.

According to A.G. Terekhov, inclusion in all sections of the state plan of indicators which guarantee performance of natural conservation tasks by taking into account either the need for resources indispensable to protection of nature or the requirements of minimizing the negative impact on the natural resource potential should become a specific form for pursuing the ecological orientation of all national economic planning.

Kh.V. Luyk proposes compiling ecological balances of existing enterprises in physical and value indicators.

8.6. What are the peculiarities and basic problems of economic substantiation and stimulation of the activation of waste-free production operations in the economy?

A fundamental solution to the problems of resource conservation and environmental protection is bound up with the development of waste-free production operations, which is why achieving national economic and cost-accounting economic efficiency of their activation is a most important task in the planning and management of natural resource conservation.

In the opinion of A.M. Bybochkin, waste-free production means not only industrial utilization of whatever ore is extracted from the earth, but also use of the portion extracted that is not ore, utilizing the waste from enrichment and conversion for recultivation of the area that has been worked, improvement of the present landscape, i.e., ecologically harmless (clean) production.

A.A. Gusev distinguishes two types of organization of waste-free production operations: those which accomplish it by reducing the formation of waste in the production process and those which utilize the waste that is formed. Consequently, the optimum process in shaping waste-free production operations should consist of a combination of economically efficient directions of technology with respect to the criterion of maximizing the national economic efficiency of resource-conservation optimalization of economic activity.

A.G. Terekhov expressed the idea that possibilities for more thorough planned substantiation of the activation of waste-free production operations lie in coordinating the activity of related enterprises, in timely inclusion of the entire output produced thanks to comprehensive utilization of the raw material in plans, balances, and so on.

B.S. Khorev emphasizes the great importance of scientific elaboration of a scheme for regional waste-free production operation on the basis of the TPK by linking production operations which are different with respect to their waste into ecologoeconomic complexes.

The participants in the round-table discussion pointed out the need for joint consideration of the problems of activating waste-free production operations and consumption of secondary resources. In the opinion of Kh.V. Luyk, the

prices of secondary resources should be set at a level where their use is considerably more advantageous in economic terms than consumption of primary raw materials.

O.F. Balatskiy sees the main problems in economic substantiation of the activation of waste-free production operations in the fact that the legitimacy of applying the indicator of the economic loss has not been regulated; no method has been worked out for determining the economic benefit of consumption from the additional output resulting from activation of low-waste and no-waste production operations; the benefit from import substitution is not taken into account; the methods aspects of recirculation of substances in the man-made environment have not been studied. Likewise the system for stimulating the activation of low-waste technologies and waste-free production operations must include bonuses for the activation of such production operations; penalties for failure to thoroughly utilize the resource; targeted preferential credits for industrial and agricultural enterprises; and a system of stricter standard rates and allowances.

8.7. What do you see as the basic problems in coordinating the sectoral and regional aspects of plans for natural conservation and optimum use of natural resources; what are the ways of solving them?

The urgency of these questions is determined by the fact that natural resource conservation, as V.K. Papisov put it, is always a regional-and-sectoral process. The problems of coordinating sectoral and regional principles of planning arise in this case because users of natural resources and the sources of the adverse effects are entire branches, while the natural resources and recipients of these impacts are localized in a particular area. Thus regional combinations of natural resources and ecological violations stand against the sectoral structure of natural resource conservation.

If the problems of environmental protection and conservation of natural resources are to be solved effectively, regional planning has to be given a stronger role--all the participants in the discussion agreed on that, but opinions differed on the extent to which the regional approach must "displace" the sectoral approach.

A.G. Terekhov proposes that integration of the sectoral and regional planning of natural conservation can be based on distinguishing two types of natural conservation measures to be carried out in a planned manner: those which combat the adverse impacts at their source and those which are aimed at improvement of a natural environment that has already been disrupted. Measures of the first type are planned on a sectoral basis and are carried out by the polluting enterprises themselves, while those of the latter type are planned on a regional basis and are carried out by specialized natural conservation organizations.

This position essentially signifies reducing the functions of regional bodies for management of natural resource conservation solely to correcting, more accurately to mitigating, ecological disruptions produced by the enterprises of the region. In the opinion of many specialists this is quite inadequate.

R.I. Rayatskas emphasizes the need to overcome interdepartmental barriers in planning the coordination and cooperation of natural conservation efforts of enterprises located in the region. Regional bodies for management must evaluate work done on planned projects in the field of natural conservation of all enterprises (not just those under local jurisdiction) so as to take into account the interests of the region's development and make the appropriate corrections.

A.A. Arbatov notes that the procedure for financing natural conservation measures has decisive importance in the priority of sectoral planning. From his point of view the production organization in the field of natural conservation must be regionally oriented and must have corresponding basic production units and conditions for financing.

Thus participants in the round-table discussion consider broadening the independence of regional bodies of management concerning questions of environmental protection and use of natural resources and allocating them the necessary financial resources to be the most important conditions for improving the effectiveness of the planning and management of natural resource conservation.

9. Should the expansion of the economic responsibility and independence of enterprises be accompanied by development of economic methods of management, or is it advisable in this area to strengthen direct administrative regulation?

10. Is there a need to broaden the system of payment for use of natural resources? What should be the principles for devising such a system?

11. What are the ways of improving pricing so as to take into account the requirements of environmental protection and optimum utilization of natural resources?

While acknowledging virtually unanimously the paramount importance of economic methods of managing natural resource conservation to increasing its effectiveness, the participants in the discussion emphasized that the problem does not lie in setting economic regulation in opposition to administrative regulation, but in their optimum combination. In the opinion of a majority of the participants in the discussion, while vigorous use should be made of economic methods to stimulate enterprises to make efforts at environmental protection and resource conservation, the enforcement of natural conservation laws and standards should be guaranteed by administrative action.

Development of economic methods for management of natural resource conservation unconditionally presupposes consistent implementation of the principle that employment of natural resources is to be paid for.

V.N. Gerasimovich and A.A. Golub suggest that rent payments should be instituted now in all units of the economy for utilization of natural resources and for ecological disruptions of the natural environment. The charge for pollution collected from enterprises in a particular region should be based on an economic estimate of the region's assimilation potential, i.e., the ability of the region's ecological systems to neutralize the harmful effluents and emissions of anthropogenic origin.

There is practically no one who has doubts about the need to expand the system of payment for natural resource employment in the production sector, but when it comes to the consumption sector, A.G. Terekhov believes, such sociopolitical consequences as the impact on the pattern of consumption, above all of population groups with a low level of income, cannot fail to be taken into account.

In making a case for the principles governing paid use of recreational resources on the basis of their economic appraisals, M.Sh. Nudelman emphasizes that this charge must be paid both by enterprises and by those who use the recreation facilities, and production organizations would make payments into the state fund for development of recreation in proportion to the number of their staff members who have been "recreated" on the basis of standard levels of the national economic effectiveness of the various types of nature use for recreational purposes.

G.V. Voropayev called attention to the fact that the institution of charges on natural resources and for pollution of the environment will have an impact throughout the entire system of prices and financial proportions in the economy and will necessitate changes in remuneration and social security. Accordingly, A.A. Arbatov notes, it will make sense to expand payment for natural resource use only in the context of the general development and expansion of cost-accounting relations and a substantial improvement of pricing.

In the opinion of R.L. Rayatskas, a most important direction in developing the economic mechanism for management of natural resource conservation is for pricing to take into account the requirements of environmental protection and optimum employment of natural resources.

Many participants in the round-table discussion believe that prices of natural resources should be based on their economic evaluation. V.N. Gerasimovich and A.A. Golub dwell in detail on the methodological questions of pricing in those sectors that exploit natural resources. They believe that the prices of the products of natural resource use must be set as equilibrium prices in accordance with the national economic benefit in the marginal sphere of consumption, rather than in accordance with the limit (maximum) costs actually occurring in the sector. The marginal costs must include costs related to maintaining the environment in a socially acceptable state. Consideration should be paid here to the forecast characteristics of reserves and the dynamic pattern of society's requirement for the given type of resources.

In order to strengthen the effectiveness of economic methods of managing natural resource conservation A.M. Bybochkin proposes increasing the percentage of transfers to incentive funds from the sale of waste, reducing prices on products made from waste, and instituting a higher charge for the use of land for tailings and waste dumps.

12. Are special earmarked funds necessary for financing natural conservation measures? What possible sources could they be formed from, and what purposes would they be used for?

All the participants in the discussion acknowledged the urgency of creating special-purpose funds for financing natural conservation measures. Kh.V. Luyk discussed in detail the first results of the economic experiment in formation of the regional fund for natural conservation in ESSR, and he emphasized the advisability of a more decisive redistribution of natural conservation resources from sectors to regions and of achieving the conditions for stable (planned) formation of the regional funds. Judging by the responses to this question, a charge for natural resource exploitation or earmarked deductions from enterprises ought to be the principal source for formation of such funds. It would be advisable to plan the deductions, in the opinion of M.L. Kyabbi, as a part of the production cost.

It should be noted that no one considered it possible to establish natural conservation funds exclusively on the basis of penalties for ecological violations. The random character of the inflow of fines runs counter to the idea of planned use of centralized natural conservation funds to carry out large-scale measures, interdepartmental projects, and comprehensive regional programs. S.M. Rokhlin believes that the role of a natural conservation fund could be taken on in the petroleum industry by the fund for increasing petroleum recovery, which already exists in the sector. But most of the specialists emphasize that regional administrative authorities must have these funds at their disposal.

13. What are the principal directions for improvement of cost accounting in the area of natural resource conservation?

In responding to the last question on the questionnaire the participants in the round-table discussion repeatedly referred to the very scant development of cost-accounting economic relations in the sphere of natural resource conservation. You can only improve what already exists, V.K. Papisev said, while cost accounting has yet to be introduced. The participants in the discussion see as the principal task in improving the economic mechanism for natural resource conservation to be the practical introduction of the elements of cost accounting now lacking in the practical operation of primary economic entities. Kh.V. Luyk considers organization of natural resource conservation on the basis of a uniform system of ecologoeconomic assessments of primary resources, waste, and pollution as an indispensable condition for the full realization of cost-accounting principles. Resource conservation must become advantageous to the enterprise and to the sector, V.M. Kotlyar emphasizes. Introduction of cost accounting in specialized natural conservation subdivisions, A.G. Terekhov remarked, necessitates a specific client, a role that might be played by administrative authorities of the particular region or area. Thus the problem of improving the economic mechanism of natural resource conservation is joined to the problem of enhancing the role of its regional management.

In brief that was the content of answers to the questionnaire sent out by the editors.

The Need for Resource Conservation: T.S. Khachaturov, member of the academy, chairman of the Scientific Council of the USSR Academy of Sciences for the Problem "Economic Efficiency of Fixed Capital, Capital Investments, and New Technology"

Sometimes the issues of the economics of socialist natural resource conservation come down to combating pollution and the attendant costs. This is only partially correct. There are two groups of problems in the economics of natural resource conservation: optimum use above all of those natural resources which are nonrenewable so that they serve society for the longest possible time; the economics of combating pollution, which is very important to safeguarding human health and preserving the environment.

The present-day tasks of optimum natural resource conservation arise out of the decisions of the 27th CPSU Congress, which emphasize that up until now principal attention in development of production has been paid to quantity, but it needs to be paid to quality. This means that it has to be paid to increasing efficiency and in particular to the conservation of resources.

Improvement of quality may require outlays. At the same time, it has a beneficial effect even on quantitative requirements. One of the examples of the influence of improved quality on quantity can be found in tires. Their higher quality provides an increase in tire life, and consequently a reduction of the need for them--and vice versa.

Unfortunately, the problems of quantity are still in the foreground for us in most cases. We have to produce as much coal as possible, but in the rush for quantity the quality deteriorates, the percentage of shale in the coal mined rises to 30-40 percent. And more and more low-quality coal is required to meet one and the same need.

A drop in steel quality means that tractors, machines, and machine tools break down earlier. In our country the machining of metals involves a very large amount of waste in the form of chips and scrap and so on. That means an additional need to extract resources.

We consume too much cement. For the same volume of capital construction as in the United States we produce 130 million tons of cement, while in the United States they produce 75 million tons. The reasons for the overexpenditure are the low quality of the cement, the lack of thrift in handling it, and the predilection for manufacturing prefabricated reinforced concrete (because construction organizations are motivated to use more expensive materials).

Every year we cut 380 million m³ of timber. About half is lost for all practical purposes at the place where it is cut, during transport, and in processing. Wooden containers, which every year take tens of millions of cubic meters of logs, make only one trip, and then they are burned.

The same can be said about potatoes, a substantial portion of which goes into the making of animal feed, spoils, or is lost because of deficiencies in digging, transport, and storage.

Yet calculations show that the costs involved in optimizing the storage and consumption of resources show a return within acceptable periods of time, that the collection and use of secondary resources could be considerably increased and the need for fresh raw materials reduced thereby.

The economics of natural resource conservation must help in determining the costs and efficiency of optimum development of production and optimum natural resource conservation, and help thereby to conserve natural resources.

Its second task is to calculate the costs and efficiency of combating pollution, including the necessity of cleaning up the air, water, soil, forest, and other natural resources.

Unfortunately, our economic mechanism does not stimulate enterprises to avert pollution of the environment and to preserve nature. Enterprises are not motivated to make expenditures to combat pollution, since these expenditures do not bring them profit. This means that administrative measures are necessary along with cost-accounting measures: the introduction of fines to be paid out of transfers from enterprise profit and out of the pay of negligent managers. The money from these fines might be used to set up a special fund for awarding bonuses to enterprises and to managers where the protection of nature has been set up properly. Administrative measures would also consist of close monitoring of production, of the technology installed, of normal operation of treatment facilities, and enforcement of the standards of PDK's and PDV's.

Possibly we should discuss the advisability of creating the State Committee for Natural Conservation. There are substantial difficulties here. The functions of planning and monitoring all types of natural resources have to be concentrated in this committee, and many issues have to be resolved in a comprehensive way, the interests of various sectors, enterprises, and ministries have to be reconciled. But here again there is a danger: Won't the result be that this committee will expand, and the decisions on many complex issues will be very difficult to obtain?

In conclusion something about certain of the principles set down in the Temporary Standard Method (1983). Appendices 6 and 7 to that method talk about the procedure for determining the loss inflicted by enterprises which are polluters. They suggest for this the formula $y = \gamma \phi M$ for the air and an analogous one for water. But the coefficients do not have any sound scientific basis. As a matter of fact, the coefficient γ in Appendix 6 is taken at 2, while after 1985 for some reason it is 2.4. There are no explanations at all concerning this, and these figures seem arbitrary. The coefficient ϕ is recommended for use in calculations in various sectors--for example, for health resort localities the coefficient is taken at 10, for natural zones 8, for industrial enterprises 4, and for orchards and vineyards 0.5. The pollution indexes have to be multiplied by these coefficients. Here again there is no substantiation. Thus the proposed coefficients can once again only be seen as arbitrary. Why take these ratios instead of some other ratios? Why not take into account the peculiarities of each locality (the relief, humidity, temperature, wind intensity and direction, etc.)? It is obvious that the damage caused by pollution will be different in large and small cities, in the center and on the outskirts, and so on.

It is impossible to check the soundness of the coefficients f_1 and f_2 as well as the derivation of the coefficient f without any relation whatsoever to actual emissions and effluents and enforcement of the standards of PDV's and

PDK's. The same thing can also be said of the coefficient M ($M = \sum_{i=1}^N A_i m_i$, in

which m_i is the mass of the annual emission of the substance i into the atmosphere and N the total number of substances entering the atmosphere), in whose derivation the coefficient of the aggressiveness of various harmful substances A is used. In Table 4, where the figures are given on the aggressiveness of a number of substances, a number of such substances are omitted, and at the same time it does not take into account the peculiarities of the locality, although the damage inflicted by these substances depends on them to a substantial degree.

It seems that attempts to determine the actual damage using the average coefficients proposed are unsubstantiated. The results of such calculations could deviate in individual cases one or two orders of magnitude from the actual figures. There is a need to work out methods of calculating the actual damage for enterprises, say, for thermal power plants, metallurgical and chemical plants, pulp and paper enterprises, and various forms of transportation. Specific examples need to be used to demonstrate how to determine the adverse effect of emissions and effluents in various concentrations, for the different conditions of the locality, for the various recipients of the impact, and then on the basis of a summary and analysis of the material gathered to write instructions as to how the computation should be introduced, what data should be used, and how they should be applied.

Relevant information in sufficient detail has great importance so that it can be used to calculate the damage and for other purposes, and it should not be used in such a generalized form as is quite often the case at the present time.

Joint work on the issues of the economics of natural resource conservation should be organized; there need to be more frequent meetings and exchanges of the results of the research conducted.

The Time Has Come To Act: P.I. Poletayev, k.e.n., deputy chairman of the Commission of the Presidium of the USSR Council of Ministers for Environmental Protection and Optimum Use of Natural Resources

The documents of the 27th CPSU Congress emphasize that it is no longer possible to go on in the old way. This applies equally to us economists involved with protection of the environment and with natural resource conservation. Probably nowhere is so much said and so little done as in the economics of natural conservation.

Here is an example. Eight years ago a conference was held in the headquarters of USSR Gosplan on the question of preparing a system of indicators and documents on methods that could be used as a basis for judging the effectiveness of natural conservation measures outlined in the plan, and it was attended by

T.S. Khachaturov and his collaborators. A decision was made as to what should be done so that the outlays made by enterprises for protection of the environment and optimum utilization of natural resources would not appear useless and so that the national economic effectiveness of such investments would be evident. But the proposals never came to anything more than words on paper. Speaking today in the round-table discussion, T.S. Khachaturov has criticized the Temporary Standard Method (1983) which he and N.P. Fedorenko, member of the academy, both signed. It is gratifying that T.S. Khachaturov should be self-critical. But that does not make it easier for anyone.

The USSR Academy of Sciences and the GKNT were commissioned to develop such a method back in 1979. And since in the words of the authors themselves the method was not suitable for use, it follows that a new and workable method needs to be devised.

The question of environmental protection and optimum use of natural resources was taken up in June 1985 in a session of the USSR Supreme Soviet, 11th Convocation, and dealt with in detail in the Policy Report of the CPSU Central Committee to the 27th party congress. The country is investing gigantic resources in environmental protection. But who is to say what they are producing and what is the rate of return on them?

As an economist I am convinced that the longer we go on guessing, rather than calculating, the more we will lose. After all, in the mining and processing of raw minerals only a small portion of what is mined is used. All the rest goes to tailings piles, including minerals for which the state has a need. And this occurs because the collectives of combines are not economically motivated in this area. And we also are to blame for this, since we have not equipped them with the necessary economic instruments.

To be sure, we do have our enthusiasts. There are combines where all the components of the raw material mined are put to effective use. Here the value of the by-product represents more than 50 percent of the entire marketed output. Scientists should take such examples to work out proposals concerning a procedure for determining the economic effectiveness of optimum natural resource conservation. Another example. The question of the flooding of land in the Ukraine was recently taken up in our commission. The level of the groundwater has risen there over large areas because of construction of hydraulic engineering and reclamation projects. When the designs were worked out, none of the scientists predicted these adverse consequences of building the reservoirs. And now we are gathering the bitter fruit.

The point is that every director and every minister must be literate when it comes to the economics of exploitation of natural resources and must give a thought to the harm he will cause by polluting the environment. But we, to our shame, cannot give him a method for computing it. The matter never goes any further than talk.

I propose that it would be wise to name TsEMI the head institute for these problems; later the institute would have to take over all of the responsibility for work on the problems of the economics of natural resource conservation.

During the discussion questions were put to P.I. Poletayev.

B.G. Rozovskiy: My question concerns the Temporary Standard Method (1983). The initial premises of the method correspond to the current scientific conception, and that is the main thing, but a detailed assessment can be obtained only in the process of verifying it. It is better to test it once than to discuss it 100 times. A paradoxical situation has now come about. The stage of experimental operation of a full-scale prototype, which is later brought up to its given parameters, is considered legitimate in engineering. Is it possible to demand the necessary product quality on the first sample in the writing of standards, when the socioeconomic processes being regulated are incomparably more complicated to assess than a piece of a equipment?

P.I. Poletayev: The Temporary Standard Method was approved 3 years ago. It is now in use. I was recently visited by the director of the Norilsk Mining and Metallurgical Combine; he said that according to the calculations made in conformity with that method the principal damage to the environment in the vicinity of Norilsk was being caused by dust, not by sulfur dioxide, which has killed forests and ruined the fishing in bodies of water.

B.G. Rozovskiy: This is no evidence at all of the incorrectness of the Temporary Standard Method. The impact of sulfur dioxide is manifested relatively rapidly, and the consequences are relatively evident. Toxic dusts have an effect not only on vegetation, but also on human health, which it destroys in a gradual and hidden way. That is why dust is so harmful. It is not economists who have made the estimate of the harmfulness of the particular ingredients, but medical men, biologists, and other specialists. It is possible that an error was committed at some point, but it can be discovered only in the process of extensive verification of the method, by checking it out in real experience.

P.I. Poletayev: That is what I have been saying, that it is time to move from talk to action.

V.B. Tkach: What is your personal opinion about the advisability of creating the State Committee for Natural Conservation? You say that we need to act, that the issue is not the state committee, but let every minister do his job. But after all there is still the distribution of duties, and nature ends up being "no one's responsibility."

P.I. Poletayev: I am just as much in favor of the committee as you are. But the whole point is that we need to define its function clearly, to "inscribe" it into the existing system for management of the economy. Very serious scientific work needs to be done here, and we do not need hasty decisions.

N.P. Fedorenko: Allow me in the course of the discussion to make a statement of fact about the Temporary Standard Method (1983). Before its approval by USSR Gosplan, USSR Gosstroy, and the Presidium of the USSR Academy of Sciences, it went through State Expert Evaluation, where all of its principles, including the computational coefficients that T.S. Khachaturov, member of the academy, has spoken about here, were subjected to scrupulous examination. The

substantiation of the values of those coefficients is, of course, not given in the method; it is contained in the accompanying monographs and scientific reports. A number of sectoral methods used in making the relevant computations have already been developed and approved on the basis of the Temporary Standard Method. To be specific, the method has also been used for computations to optimize measures to combat air pollution from the Norilsk Mining and Metallurgical Combine; the results of those computations were used in working out the master chart for the combine's development up to the year 2020. There have been many favorable responses to the document prepared as a whole, although there have been quite a number of suggestions for its improvement, including some that concern the computational coefficients. We are well aware that this method is in need of further and quite serious improvement (there was good reason for it to be referred to as "temporary"), but there is no other way to improve it than broad practical verification of this document. And yet the method has been published only in a negligibly small printing and is simply not available to most design organizations. Nor has the question been settled of how to economically stimulate natural conservation measures in accordance with their economic benefit to the national economy.

A.S. Astakhov: What was the fate of the method for economic assessment of the most important types of natural resources?

P.I. Poletayev: As far as I know, the draft version is in the hands of the GKNT.

A.S. Astakhov: Who should take responsibility for examining it, refining it, and approving it?

P.I. Poletayev: This is a job we have in common. I will always be happy to meet any scientist and take the steps necessary to speed up the decision on drafts that have been prepared of documents on methods.

It needs to be borne in mind that in addition to the methods of calculating the damage caused by pollution of the environment and methods of assessing natural resources, there is also a need for an economic mechanism that would stimulate a real increase in the effectiveness of natural resource conservation. It is an effective mechanism that is needed, not just work projects. Work has to be done on this.

The Need for a Comprehensive and Scientifically Substantiated Geological-Economic Assessment of Deposits: A.M. Bybochkin, d.g.-m.n., chairman of USSR GKZ

Quite a bit has been done in the last decade to achieve comprehensive geological-economic evaluation of deposits and optimum use of raw minerals and protection of the environment. Legislative enactments adopted in recent years at the state level have played a constructive role toward optimum consumption of mineral resources and protection of the environment.

I think that the round-table conference will leave a deep imprint on the work done on this complicated, highly ramified, and extremely capital-intensive problem.

Many years of experience working in the mining sectors of industry and in a specialized state agency for reliable expert evaluation of reserves of minerals and the degree of readiness of deposits for comprehensive development has convinced me that the approach to this problem must begin with a comprehensive and scientifically sound geological-economic assessment of deposits. Only in this case will the technical designs of future mining, metallurgical, and chemical enterprises make provision for utilization of all components which are officially reflected in documents pertaining to assessment of the reserves of the deposits prospected. The recent classification of reserves and forecast resources of solid minerals and other normative documents were drafted so as to take into account the requirements of this kind of comprehensive assessment. An effective technology for extraction and processing of the raw mineral is an important element of that assessment, which pays attention to protection of the environment.

I should mention that the present-day mining industry represents about one-third of the country's fixed productive capital. Approximately two-fifths of capital investments go to this sector every year. The USSR's total contribution to the volume of world mining output is more than one-fifth. Specific costs in mining 1 ton of raw materials are rising. Comprehensive use of the raw mineral will make it possible to renounce the extensive policy in the mining sectors of industry and satisfy the ever growing needs for raw minerals on an optimum technological and economic basis. We talk a great deal, and rightly so, about conservation of metal, rubber, energy, fuels and lubricants, but quite often we forget the need to save on raw minerals and their reserves underground; after all, any saving has to begin right there.

A few words about using marginal costs in evaluating deposits. Marginal costs are now used in evaluating deposits in rare cases, mainly in evaluating recoverable reserves of petroleum. The reason for this is the difficulty of devising a universal method of geological-economic assessment of deposits and ores containing more than one mineral, when such an estimate is based on marginal costs.

Fears have also been expressed to the effect that the transition to the use of marginal costs instead of wholesale prices could result in a deterioration of the quality of the raw materials base. There is also rationale behind this. Geologists, for example, have prospected a deposit of apatites in Yakutia: the size is moderate, the quality of the ore is not very high, and the conditions for working the deposit are problematical. On the basis of the wholesale prices now in effect it does not "pass" to be included in the balance. This is not a simple problem, and it has to be solved on a balanced basis in view of the most recent advances in the technology of mining and processing phosphorus ores and apatite concentrates.

Experience in doing geological-economic assessments of deposits demonstrates that an increase in outlays for environmental protection has an adverse effect on the evaluation of whether mineral deposits go into the balance or not; in the Donbass, for example, they double the projected costs of building new underground mines. If in evaluating whether prospected deposits are to be included in the balance or not one must take into account outlays for

environmental protection, then obviously all of these costs should also be taken into account in setting the wholesale prices.

A method has been developed and approved for geological-economic assessment of petroleum deposits and for assessment of condensate in gas deposits which provides for calculation of the coefficients of petroleum and condensate recovery from underground using marginal costs. It would be advisable to use prospective marginal costs in determining such coefficients. After all, the raw materials base is not being created for the present day, but for the future. In projects for development of petroleum and gas condensate deposits provision should be made for differentiation of the proven reserves according to the calculated cost of extraction, specific capital outlays per unit output, taking into account the time factor and progress in the technology for multipurpose development of deposits and the technology for thorough combined refining of petroleum.

An important issue has to do with the setting of wholesale prices on accompanying products obtained from composite ores. In present prices, for example, cobalt obtained from the pyrites of a number of iron ore deposits cannot compete with cobalt from sulfide ores of copper-nickel deposits. This situation equally applies to other products obtained as by-products from the ores of ferrous metals.

Scientific substantiation of the need for various types of raw materials and determination of ways of meeting that need on a balanced technological and ecological basis has a substantial impact on optimum use of raw minerals. Unless this problem is solved for TPK's, republics, krais, and oblasts, the task of thorough utilization of the raw material, especially nonmineral, will be difficult to perform.

I would like to emphasize that only integration of the efforts of geologists, mining engineers, technologists, and economists will make it possible to extend a strategy of intensification over the process of prospecting deposits, preparing them for commercial development, and the actual development of deposits using highly efficient methods.

Why Is There Still No Approved Method for Economic Evaluation of Natural Resources: M.I. Agoshkov, member of the academy, chairman of the Problem Commission for "Natural Resources of the USSR" of the USSR Academy of Sciences and GKNT

I would like to restrict my statement to a single problem: Why do we still not have an approved method for economic evaluation of natural resources?

As is well known, in our country there are prices for practically all types of products produced, and at the same time the problems of setting prices are rather complicated and have not been definitively solved by any means. Yet pricing should not be confused with the problem of economic evaluation of natural resources. This is very important.

Approximately 10-15 years ago a group of scientists began to concern themselves in an organized way with devising a uniform methodological basis for economic evaluation of mineral deposits, land, timber, and other natural resources. In these years abundant experience has been gained in discussing and applying the methods of evaluating natural resources. Unanimity or at least similarity of viewpoints has been achieved on many basic questions (very complicated and debatable ones).

To be specific, consideration has been given to ways of estimating the damage which the state and the national economy suffer from the flooding of land resulting from construction of hydropower stations. What do we gain here, and what do we lose? General agreement has been arrived at to the effect that in estimating the losses of natural resources, especially those whose quantity is limited in nature, the time factor has to be taken into account. It is still a matter of debate whether the allowance for taking the time factor into account should be uniform or should be differentiated by types of resources and over time. We are inclined to consider this a differentiated standard.

Everyone agrees that the evaluation of natural resources must express the economic benefit to the national economy obtained as a result of the given resource's use. This benefit is expressed in the form of the difference between the value of the product produced from the natural resource and the costs of obtaining it. The question that has aroused more debate than any other is this: How to measure the value of the product--in wholesale prices or in marginal costs?

Adherents of evaluating natural resources in wholesale prices cannot answer this question: How are wholesale prices to be used in determining the economic benefit if they are set at the level of the average costs of the sector for the type of product in question?

It is well known that there are many enterprises, both in operation and being planned, whose production cost is higher than the wholesale prices, and quite often considerably higher. But still such enterprises are operated; they are indispensable to meeting the needs of the national economy for the product in question.

Advocates of wholesale prices assume that an adverse assessment of a natural resource has been obtained if its production cost is higher than the wholesale prices which have been set. Then they say that some sort of special, higher prices should be used in the computations for such facilities. Where is the logic here: How is it possible to evaluate one and the same type of production resource in different prices? This is not only devoid of scientific and practical sense, it lacks even common sense. That is the formal position taken by representatives of Goskomtsen. I would even allow myself here, in this round-table discussion, to refer to it not as a position, but as a departmental ambition. Unfortunately, Goskomtsen has been granted the right to approve the sectoral methods on appraisal of deposits, and it exercises that right by rejecting all proposals concerning the sectoral methods if they are built on the basis of marginal costs.

Last summer a decree of the GKNL created a working group for the final refinement of the basic principles of the method for economic evaluation of the most important types of natural resources. That group included representatives of scientific institutions and a number of departments, including USSR Gosplan, the GKNT, and Goskomtsen. The working group consists of 14 people. It has been working hard for a long time now. The discussion has made it quite evident that all the members of the working group except the three representatives of Goskomtsen agree to the method that has been developed and in particular to the idea that the evaluation of natural resources should be made with marginal prices. An evaluation like that makes it possible to select the methods of the most efficient use of natural resources in the most optimal way from the standpoint of the national economy both for the present day and, as A.M. Bybochkin has rightly said, also in view of the future. Wholesale prices can be used only in special cases.

In any organization and at any level we (I am referring to the bulk of the working commission) are ready to prove that an evaluation of natural resources on the basis of wholesale prices is incorrect and simply makes it unusable. That is the outcome of the prolonged work done by a group of major scientists and specialists. That is the only thing that is today holding back the practical introduction of economic evaluation of natural resources.

And the first cause of all of this is that approval of methods for evaluation of natural resources was wrongly made the responsibility of Goskomtsen; this does not lie in its competency, but in that of USSR Gosplan. This matter is not a question of prices, but of evaluation of the economic benefit to the national economy from the utilization of natural resources.

Introduction of Unified Management of the "Man--Nature" System: L.A. Melentyev (deceased), member of the academy, member of the Presidium of the USSR Academy of Sciences

Man and nature must be regarded as a global system. Insofar as man transforms nature, that system needs to be managed to an ever greater degree; otherwise its development may not go in the direction where it should go.

What do we mean by management of the global system "man--nature"? There are three principal components of this management: centralized planning; the impact of economic levers; and restrictions established administratively. None of these have been sufficiently refined as yet, and that is why the system itself has to a certain extent still been developing haphazardly.

The reasons for the deficiencies of centralized planning of the global system have already been discussed. It is obvious that a rather straightforward ranking of the costs relative to the benefit obtained should be an essential component of it. Then we will know which areas we should commit resources to first, where they will yield the greatest benefit. Today there is no such ranking from the standpoint of the entire economy that has been properly substantiated, and this is greatly complicating the planning of ecological measures.

Economic levers are also applied very little. It has already been said that we need to evaluate the effectiveness of the utilization of resources. But it seems to us that this kind of rigid posing of the question is not always correct. In some cases one can talk about outlays for the reproduction of resources, while in others about the natural conservation effect of a saving of resources. I would like to give a few examples.

The large losses of timber in all stages of obtaining it and processing it are well known. Everyone knows about the immense damage to the economy from the system of management that still exists in some places based on the very primitive principle of "cut-and-run." If stumpage were introduced in line with the state's actual costs of reforestation and if the timber and woodworking industry were put on real cost accounting, then I think that the timber and lumber industry would take a different approach to formulation of its technical policy. There would be a sharp reduction in the calculated cutting, they would stop burning the trash in the forest, and so on. The timber industry would begin to explore intensive development strategies, especially if the introduction of real stumpage were not accompanied by a rise in the prices of the finished products of this sector.

Of course, something else is also necessary--to free forest management entities from cutting timber and to concentrate their attention on reproduction of the forest and to monitoring the activity of those cutting the timber. In other words, the forest should have a single master--Gosleskhoz.

Yet another example taken from the experience of Minsvobkhoz, where the extensive principle is still being used to a great extent. This is dangerous, since this ministry's activity involves water and land.

What is the main deficiency here? It is characteristically manifested through the ministry's opposition to institution of a water charge. This means that extensive methods, which result in excessive loss of water over the entire route from the stream to consumption, are most acceptable to it, but, of course, they provide the justification for carrying out more expensive measures to increase the "effectiveness" of the report on performance evaluated "according to gross volume"; in other words, often today it is advantageous to Minsvobkhoz to do what costs the most.

Now that the party has set the task of evaluating the performance of ministries according to the final results, a fundamentally different approach is required to evaluating the effectiveness of Minsvobkhoz's effort. The final result means real attainment of the rated yield on land where it carries out reclamation. Only when that is achieved should Minsvobkhoz receive the money earned, but before that it ought to be financed through Srobybank. The role of Gosagroprom is especially important in performing this task.

In conclusion several considerations concerning the activity of USSR Minenergo.

First. As long as land was free, there, of course, was justification in formal economic terms for a sizable flooding of area when hydroplants were built in the plains. The result was that they were built with large (in terms of

the area of the land flooded) storage reservoirs with relatively small depth. That is why a sound charge for land could have brought substantial corrections into the decisions made earlier.

Second. At present USSR Minenergo considers hydroplants to be its own "property" and it operates them in the way that is most economical for the pattern of power supply; "discharges" of water to meet the needs of water transportation are an exception. Here it is advantageous to the ministry to "hold back" the spring rainfall, storing it until the winter, when the largest amount of electric power is needed. But this use of the spring precipitation is unquestionably harmful to fishing; in the spawning period many fish species lay their eggs in the shallows, anticipating, of course, the natural spring runoff; when that does not come, the eggs are left high and dry and die.

There would seem to be good reason to institute an additional water charge for the spring water which the hydroplant does not pass through. This charge should approximately compensate the loss annually suffered by fishing. This approach provides an economic lever which could substantially correct the situation in the exploitation of the stream.

Third. In certain CEMA countries and certain regions of the USSR additional difficulties are arising in agriculture because of the construction of overhead electric power transmission lines, which sometimes gets in the way of farm work. Introducing a charge on the land confiscated would mean that in a number of cases it would be economically advisable to reduce the number of power transmission lines, for example, by increasing the level of the voltage, and that could turn out to be optimal for the national economy.

Thus an astute and timely establishment of economic levers could promote solution of many economic problems and also problems of the national economy.

On the whole, it is evident, it would be sensible to introduce unified management of the "man--nature" system, including the three components we have examined.

Correct Evaluation of Natural Resources as the Basis of an Optimum Strategy for Their Use: M.A. Styrikovich, member of the academy and member of the Presidium of the USSR Academy of Sciences

First of all, about evaluation of mineral deposits. It cannot be based on wholesale prices, since they are based on the average production cost in the sector; that is, they take into account only averaged indicators pertaining to extraction both under the most favorable natural conditions and also under the most unfavorable ones.

A.M. Bybochkin has said that Yakutia's phosphate deposits do not "pass" as deposits to be included in the balance as compared to the wholesale prices of the Koli deposit. But after all, the needs of the entire Union cannot be satisfied solely from the best phosphate deposits; one must also take into account the need to use the reserves of phosphates whose natural conditions are not so good. Large additional transportation costs are necessary if Koli

phosphate ores are to be transported to Siberia. To decide the question, then, of whether the Yakutia phosphates should be placed on the balance, that is, are profitable for development, consideration must be given not only to the mining costs, capital investments in those deposits and their infrastructure, on the one hand, but also the analogous indicators (including, if necessary, construction of the railroad from the Koli deposits to consumers) for expanded production of phosphate fertilizers using the minerals from the deposits being worked, on the other. Only optimization computations of this kind, taking into account both the very near and more remote future, can objectively answer the question of whether the Yakutia phosphates should be placed on the balance, that is, the question of whether they should be developed, and if so, whether this should be done now or later.

It is precisely from such computations that marginal costs are determined--those costs which are required for the most expensive deposits to which we are forced to resort in order to meet the needs. That is elementary. And all the computations, including those involved in determining the optimum depth for recovery of petroleum, the advisability of combined use of polymetallic ores, of mining the expensive low-grade coals of the Donbass, and so on, should be done using marginal costs. And, of course, where the moment of transition to the worse deposits is close, the future must also be taken into account. Of course, when we speak, say, about phosphates, we need to think on the scale of the entire country, but when it comes to gas-condensate deposits, i.e., to the production of a product for export, then we also have to keep the trade balance in mind.

I proposed 15 years ago that Tyumen's gas-condensate deposits be exploited first; this was the optimum solution because of the high value of the condensate. When the wholesale price of condensate was considerably lower than the price in foreign trade, it still would not be efficient to extract the condensate, since it was more profitable for the gas industry to work such deposits to "exhaustion" and at the same time lose a sizable portion of the condensate.

It seems quite obvious that the optimum solution of any problem having to do with the working of minerals must be based exclusively on marginal costs, not wholesale prices. But even if we should begin to use marginal costs in national economic computations, if business activity is based on wholesale prices, then the optimum solution can be adopted, but it will prove to be practically impossible to carry it out because it is not possible by "coercive" methods to compel movement in a direction that contradicts the economic interests of the branch or the enterprise.

The only road which can lead toward an optimum strategy of the entire mining industry and which must be followed in the very near future is establishment of wholesale prices at a level determined by the marginal costs. At the same time, of course, enterprises in the mining industry exploiting highly economical natural resources must pay a differential mining charge to the state. Since the best resources are being exhausted, and as a rule it is necessary to resort to increasingly worse ones, the resources which today are the marginal ones included in the balance must have their value. Such resources need to be evaluated according to the cost that corresponds to the increased expenditures

to use deposits that will be newly developed in the future as compared to the previous ones, i.e., according to the difference between the marginal costs today and those in the future.

Only in that kind of pricing system for any enterprise in the mining industry will the level of profitability of both extracting the particular resource and also of utilizing all its components be in line with what is advisable from the standpoint of the national economy. And the correct solution, what is more advantageous--to consume more or to use more economically--will be found for consumers.

The situation is more complicated for renewable resources. It would seem that here it is necessary to pay the costs of bringing in substitute resources or increasing the efficiency of those that exist. If we flood some land, then we must pay compensation, for example, by way of irrigating arid land or additional intensification of the use of existing plowland by applying more fertilizer.

A correct assessment of the loss incurred because of pollution of the environment is necessary above all in order to select the optimum strategy for spending those immense sums which are being appropriated to carry out natural conservation measures. We are unable to calculate the size of the loss with sufficient accuracy. In the case of air pollution particular attention is paid to its impact on human health. But the present PDK standards of particular harmful admixtures in the air have not been sufficiently substantiated, especially with respect to the dependence of the harmfulness on the duration of the effect. The research used for setting the PDK standards was based mainly on reflexlike reactions; that is, they say more about the comfort factor than about health hazards. There clearly have not been enough experiments to determine physiological changes in the organism under the impact of the prolonged effect of low concentrations for drawing reliable quantitative conclusions. Still less has there been major research in the field of medical statistics. The standards govern only concentrations of the air in the street in the layer near the ground (the "respiration zone"), although the population spends the larger portion of calendar time (especially city inhabitants) within dwellings. There has been almost no quantitative research on the influence of particular types of air pollution on the damage caused by corrosion of fixed assets (machines and buildings). The losses from deterioration of the biosphere are not reliable enough either.

That is why, as has already been remarked here, the Temporary Standard Method (1983) is provisional to a considerable degree. What is required for it to be more accurate? First of all, the scale of scientific research on all aspects of the problem needs to be increased many times over, bringing the appropriations for them up to at least 1 percent of the resources allocated for natural conservation measures.

But at present it is better to make at least an approximate computation and on the basis of calculations determine the optimum strategy for distribution of funds for natural conservation measures, committing the capital investments first of all to those places where the greatest benefit is achieved per unit

cost. Spot checks show that often measures are included in the plan whose benefit per unit cost is between one-tenth and one-hundredth of those for which "funds are lacking." A typical example is the question of restricting emissions of sulfur oxides into the air. For instance, there have been demands expressed for construction of desulfurizing installations at thermal electric power plants burning high-sulfur coal, although the concentrations of SO_2 there are between 10 and 100 times less (and the costs correspondingly much higher) than at the enterprises of nonferrous metallurgy.

At the same time the systematic national economic approach, which takes into account the costs and the benefit both at the enterprise and in the branch, as well as for consumers, must be adhered to in all projects of this kind. And, of course, the ecological aspects must be taken into account in all the computations.

In conclusion I would like to demonstrate this approach by taking a specific example. If on the one hand we count up all the costs required to increase the mining of coal in the Kuzbass (including housing, the infrastructure, increasing the traffic capacity of the railroads), and on the other the full costs involved in building new underground mines and developing the beds which are not thick in the Donbass, then even today increasing the mining of Kuznetsk coal would be far less expensive than maintaining the mining operation in the Donbass, where the productivity of labor is half as high. But in the future the difference will grow, since the better coal has already been worked in the Donbass, while in the Kuzbass less than 20 percent of the coalfields have been worked, and coal will be mined for a very long time yet in open cuts or shallow underground mines with thick beds. It has been said here that the capital intensiveness of new underground mines has now doubled in the Donbass when protection of the environment is taken into account. But this only involves taking into account the natural conservation measures during mining, but after all we also need to take into account the costs for the consumer, which are far higher for Donetsk coal.

The point is that the sulfur content in the Donetsk coal is 8-10-fold greater than in the Kuznetsk coal. For the emissions into the atmosphere containing sulfur to be the same when this coal is burned at thermal electric power stations as when they burn Kuznetsk coal, the power plants would have to have very expensive installations to desulfurize the exhaust gases with an efficiency coefficient of 85-100 percent. Abroad (United States, West Germany, Japan) when they burn high-sulfur coal, desulfurization of the exhaust gases is widely used, but its high cost results in the sizable difference in price between high- and low-sulfur coal. For instance, in the United States the latter costs about \$40 per ton of standard fuel, while high-sulfur coal is sold at \$25. Obviously in setting prices we, too, should look to the value of the fuel from the consumer's standpoint and collect the difference between the full cost of mining and transport to the consumer and his costs as a differential mining charge. Then perhaps we would not debate about which deposits are profitable and which operate at a loss, but would objectively calculate their profitability and determine the optimum strategy for inclusion of various resources in the consumption balance (also taking into account the trade balance).

The Region's Natural and Production Potential--The Concept, the Essence, and Methods of Evaluation: M.Ya. Lemeshev, d.e.n., laboratory head of the standing Commission for Study of the Natural Productive Forces of the USSR in the Presidium of the USSR Academy of Sciences

I deem it indispensable to comment first of all on the criticism of economic science expressed in the speech by P.I. Poletayev, who declared that economic scientists have not been proposing anything concrete for improvement of planning and management of socialist natural resource conservation. That kind of criticism seems somewhat one-sided.

It would, of course, be foolish to deny that the grounds exist for objective criticism of the results of economic research in the field of natural resource conservation. Sufficient basis does exist. This was indicated, to be specific, in the speech by T.S. Khachaturov, member of the academy, who is the leading author of the Temporary Standard Method (1983), acknowledged that it is imperfect. But the method was approved by USSR Gosplan, USSR Gosstroy, and the Presidium of the Academy of Sciences some 3 years ago, but it has not been extensively tried out (and without that it is not possible to improve it). The scientists cannot organize that kind of trial on their own, here they have to have the assistance of the relevant departments.

Economic research on development of specific allowances for consumption of natural resources relative to the output of the end product, on substantiation of standards governing the quality of the natural environment, and on improvement of the economic mechanism of natural resource conservation has not been experiencing a robust development. Work of this kind should unconditionally be invigorated and the specific quantitative indicators arrived at. Apparently there are other problems as well. Nevertheless, we should grasp clearly that solid progress in the area of improving the practice of planning and managing socialist natural resource conservation is possible only through close interaction of scientific organizations with those institutions of the state which are making the decisions of the government. At present that interaction is feeble and sporadic. And the reason for this is not only the passivity of the scientists by any means. It is rather the other side that is at fault.

Work on the draft version of the method for economic evaluation of the principal types of natural resources--farmland, forest, water resources, and mineral deposits--began more than 10 years ago. The draft version was discussed repeatedly, in the main it was approved by many authoritative scientific bodies, but it has thus remained a draft version to this very day. It is obvious that activity on the part of the scientists alone is not enough for the method's approval.

Now about an approach to the planning and management of natural resource conservation which in my view is particularly important.

The 27th CPSU Congress set the task of optimum combination of sectoral and regional management of the economy and of achieving the comprehensive economic and social development of regions and further broadening of the rights of republic and local authorities in guidance of the economy. Realization of this

fundamental strategy of the party requires a radical improvement of the present practice of forecasting and planning regional development. This in turn presupposes greater attention on the part of economic science to the problem of expanded reproduction in the regions of the country taken separately.

At the present time the pace and structure of reproduction in the economies of the regions are formed under the definite impact of sectoral development. The economic, social, demographic, natural, and ecological features of regions are at best only "taken into account" in the substantiation of the rates and proportions of development of the sectors. This practice is not in line with the present-day tasks of regional development. There is a need for planned activity concerning reproduction of the productive forces in regions as open, but sufficiently separate and integral socio-ecologoeconomic subsystems of the country's unified national economic complex.

It is well known that social reproduction traditionally includes these three most important components: reproduction of the means of production, of labor resources, and of production relations. Under present-day conditions an objective need has arisen to include in this system reproduction of natural resources and of the quality of the environment, which is subject to standards. This approach is especially important to regional systems, since each of them differs essentially both with respect to the urgency of socioeconomic tasks and also with respect to the composition of natural resources and the ecological state of the environment. To be specific, this approach to forecasting and planning the region's development can be pursued by substantiating and subsequently achieving the general purpose of regional development, which is expanded reproduction of the natural-and-production potential of the region (PPPR).

Its components are these: natural resources (land, water, forest, recreation, minerals, plants and animals, and area); population and labor resources; basic production, scientific-production, and nonproduction assets; and the ecological state (quality) of the most important components of the natural environment.

All of these components must be described in quantitative and qualitative evaluations from the standpoint of how well they serve the goals of socioeconomic development of the unified national economic complex as a whole and of the given region in particular and also the requirements of the present-day advances of scientific-technical progress. These evaluations must serve as the initial ones in shaping the integral evaluation of PPPR.

It is important to obtain an integrated evaluation of PPPR and to analyze its dynamic behavior because its individual components are interchangeable and closely interdependent. The growth of one of them may be accompanied by an increase or reduction of the others. For instance, creation of new productive capital in geological explorations and in the mining industry promotes development of new mineral deposits, i.e., a growth of the natural resource component of PPPR, while at the same time exploitation of newly developed deposits will be accompanied by a confiscation and destruction of valuable farmland; that is, that same natural resource component of PPPR will be reduced. An

analogous situation may occur in hydraulic engineering and water resource construction, in the location of production operations which pollute the environment at a high rate, and so on.

A system of absolute and relative evaluations of an economic nature could on the whole be used as an instrument for qualitative descriptions of the productive capabilities of the various components of PPPR. Depending on the purpose of the analysis, these might be comparative point scores or expert evaluations, objectively based evaluations of resources obtained on the basis of the drafting of optimum plans, and so on. It is important that they be structured on a uniform economic basis and be commensurable.

The goal of regional development must be the fullest performance of socioeconomic tasks in the form of maximizing the production of the consumption fund in the region (adjusted for fulfillment of targets in accordance with the prospects for the social division of labor) along with simultaneous expanded reproduction of the region's natural potential.

The task arises here of seeking the optimum relationship between the rates of development of the particular components of PPPR and the corresponding optimum structure of total costs (of capital investments in the simplest case) by means of evaluation of their "contribution" to attainment of the general socioeconomic goal of the region's development, i.e., to augmenting the consumption fund and PPPR.

Research now being done in the field of the economics of natural resource conservation quite often is fragmentary and partial in nature. The integral approach to these problems in the context of reproduction is in our view the main thing in the effort to optimize socialist natural resource conservation.

(Conclusion to follow)

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AGRO-ECONOMICS, POLICY, ORGANIZATION

STRENGTHENING OF SCIENCE-PRODUCTION ASSOCIATIONS IN APK

Moscow SELSKAYA ZHIZN in Russian 30 Sep 86 p 1

[Editorial: "Union of Science and Production"]

[Text] The acceleration of the country's economic and social development, as was stressed at the 27th CPSU Congress, depends largely on how quickly and resolutely science turns to the needs of public production, and production to science, and on how fruitful the interaction between them is. In the last 15 years in various sectors of the national economy, including the agroindustrial complex [APK] different forms of the cooperation of scientists with the collectives of enterprises, kolkhozes and sovkhoses have arisen. Science-production associations [NPO's] have turned out to be the most stable and efficient among these forms. There are now 103 such associations operating in the system of the USSR Gosagroprom, including 81 in agricultural sectors, 18 in the food and meat and dairy industry, and four in the area of mechanization and electrification.

Most of the NPO's represent large scientific and production-economic complexes. They include 75 research institutes and more than 160 of their branches and experimental stations, 26 experimental design bureaus, 70 plants and factories, and more than 200 experimental-production, seed-growing and pedigree stock farms and other subdivisions. More than 250,000 people are now working in the associations, including more than 12,000 scientists. Many associations have shown high work efficiency contributing to the acceleration of scientific-technical progress in different sections of the APK.

The example of the Sakhar NPO is noteworthy in this connection. In recent years here, they created 64 models of new equipment and developed 40 improved technological schemes as well as a number of progressive techniques and methods in the organization of sugar beet production. Many of them meet world standards. The application of scientific-technical developments carried out in NPO's made it possible to raise the level of mechanization of labor-intensive processes at sugar plants to 92 percent, free more than 7,000 people, obtain more than 200,000 additional tons of sugar annually, and lower fuel expenditures by 660,000 tons and the use of limestone by 700,000 tons. The unified scientific-technical policy being carried out by the association is making it possible for the sector to make steady improvement in the qualitative indicators of production.

The influence of the Dnepr NPO on the increase in the labor efficiency of corn growers is also increasing every year. Here scientists and specialists in different fields of knowledge are striving to ensure a comprehensive resolution of scientific-technical and production questions, from the breeding of new varieties and hybrids of corn to the application of industrial technologies for their cultivation. The industrial technology for the production of corn grain developed in the association is used on 3.4 million hectares in the country. Especially indicative are the results of the work of the NPO in Dnepropetrovsk Oblast, where the harvest of the grain of this crop increased by an average of 11.7 quintals per hectare in recent years thanks to the application of the recommendations of scientists.

The NPO's for horticulture and viticulture imeni R.R. Shreder in Uzbekistan are working productively, providing a great deal of help to farms in the spread of new varieties and hybrids of fruit and grapes and intensive technologies for their cultivation, as are the Maslozhirprom, Pishchepromavtomatika and a number of other NPO's. Their experience is evidence that they involve a qualitatively new form of creative cooperation between scientists and production workers. It is based on a greater reciprocal responsibility for the overall work and its results. Here it is easier to overcome the isolated performance of the work in different "science-production" stages, which significantly reduces the time both for the carrying out of research and drawing and designing work as well as for the advancement of scientific-technical innovations from the laboratories of scientists to enterprises, fields and farms. At the same time, scientists are actively involved in this work, as are farm and enterprise specialists in the research process.

The potential possibilities of the NPO's are still not being fully utilized, however. The fact is that so far the organizational-economic and legal relationships between the scientific, experimental and production subdivisions have not been regulated and the questions of the planning of their activities and the economic stimulation of the results of work in research and incorporation have not been worked out. As applied to the experimental plants, enterprises, kolkhozes and sovkhoses included in the NPO, production plans under the existing system of economic incentives force their collectives to concern themselves primarily with the fulfillment of the targets for commodity output and to put aside the work for the creation and application of new equipment and progressive technologies, the production of seeds and highly reproductive planting material, and the breeding of pedigree livestock and poultry. Nor can one consider normal the fact that the wages of specialists working in scientific subdivisions are far from those of farm and enterprise specialists. To a considerable degree, the increase in the efficiency of the work of many NPO's is being restrained by the weakness of the material-technical base.

Life and production are more and more urgently demanding the further development and improvement of the NPO network and other progressive forms of integrating science and production. In particular, scientific-production and production systems can be organically included in the agroindustrial system. As you know, their establishment is provided for in the decree of the CPSU

Central Committee and USSR Council of Ministers "On Measures to Make the Country's Grain Farming More Stable and to Increase the Cereal Fodder Resources in the 12th Five-Year Plan." The USSR Gosagroprom, the Academy of Agricultural Sciences imeni V.I. Lenin, the councils of ministers of the union and autonomous republics, and the krayispolkoms and oblispolkoms have been assigned the task of establishing such systems on the basis of research institutes and their branches, experimental stations and advanced farms for each natural-climatic zone of the oblast, kray or republic to provide for the application of intensive technologies for the cultivation of cereals and other crops. These systems must provide for primary seed growing and the multiplication of promising varieties, the improvement of technologies, and the development of projects for the intensification of farming and their fulfillment on contractual bases in kolkhozes and sovkhozes.

In the USSR Gosagroprom, they are now developing a new standard position on the NPO as well as an exemplary position on scientific-production and production systems. These positions are called upon to help in every possible way so that the associations and systems can indeed ensure a decisive acceleration of scientific-technical progress in APK sectors. At the same time, measures must be taken centrally and locally for the decisive elimination of any obstacles in the work of associations and systems, for their reliable provision with all types of resources and material-technical means, and for their strengthening with qualified personnel. Active help in this matter must be provided by the USSR Gosplan, the USSR state committees for science and technology, labor and social questions, and local party, soviet and economic authorities.

Much will also depend upon how the managers and party organizations of the kolkhozes, sovkhozes and other subdivisions of agricultural industry as well as research, planning and design, and experimental institutions mobilize their collectives for the acceleration of scientific-technical progress. It is a matter of achieving a more profound turning of research work and applications toward the resolution of the main priority problems in the economic and social development of the country and the increase in labor productivity in the APK and the efficiency of management on the land. The focus of attention must be the struggle for a rational and highly productive utilization of land, manpower, physical and water resources, and the means of production on each farm so that one can attain more production of better quality with smaller expenditures.

The strengthening and deepening of the ties between science and production are the guarantee of new achievements on the way to the intensification of agroindustrial production.

9746

CSO: 1824/27

AGRO-ECONOMICS, POLICY, ORGANIZATION

MURAKHOVSKIY INTERVIEWED ON AGRO-INDUSTRY

LD151923 [Editorial Report] Moscow Domestic Service in Russian at 1015 GMT on 15 Nov 86 carries a 30-minute interview with Vsevolod Serafimovich Murakhovskiy, first deputy chairman of the USSR Council of Ministers and chairman of the USSR State Agro-industrial Committee, by an unidentified interviewer. The date and place of the interview are not given.

Murakhovskiy's opening remarks survey the task of setting the agro-industry on the path of intensive development, introducing scientific and technological progress and stepping up the human factor, stressing that acceleration requires initiative, persistence and single-mindedness from every person in the agro-industry.

Talking about preliminary results of the agricultural year, Murakhovskiy continues:

"The first harvest of the 12th 5-Year period has been gathered in. The total grain harvest has considerably exceeded the level of 1985. It is particularly important that we have succeeded in sharply increasing production of hard, strong and valuable varieties of wheat; resources of these are one-third more than last year."

He goes on to list some of the good yields achieved in various areas of the country, congratulating them on their successes. He says: "A fair harvest of cotton has been grown in the country, and a weighty increase in potatoes and fruit and vegetable products has been achieved." Belorussia has produced a good potato harvest and the livestock sector has also done well, he says.

Murakhovskiy continues:

"This year state procurement of milk has increased by 2.7 million metric tons, of meat by 1.1 million metric tons and eggs by 2.2 billion units. A considerable increase in output has been achieved by enterprises in the food-stuffs, meat, dairy and fish industries, as well as other sectors of the agro-industrial complex. We therefore have evidence of progress in building up agro-industrial output. The volume of gross output from agriculture is going up by approximately R10 billion, and that of the food industries by R5 billion."

Murakhovskiy proceeds to describe work underway now on the farms to overhaul agricultural equipment, while the harvest is now being processed. Livestock farmers are working on their winter schedule. The following exchange takes place:

[Interviewer] "For many years, for a whole series of reasons, the material and technical base of agro-industrial enterprises has remained poor. Because of a lack of transport, of storehouses, imperfect means of storing and processing, quite a lot of grain, sugar beets and potatoes were lost and rotted. But in the current season it is evident that there has been a turn for the better in this respect.

[Murakhovskiy] "Yes, we really have continued to strengthen the material and technical base of the agro-industrial enterprises. Construction of new storehouses, combines, works and other production, and particularly social, sites has proceeded energetically. Over 9 months alone R27 billion of capital investment has been assimilated, R1.6 billion more than last year. One hundred and twenty eight major projects for the agro-industrial complex have been brought into use. But this is only the start. Ahead still lie many problems needing to be solved. Making a critical assessment of the results achieved, it should be noted that we still have much to do to consolidate the trend for accelerated growth in production of foodstuffs. Unfortunately, there are still shortcomings and unresolved issues both in agriculture and in the processing industries."

Murakhovskiy mentions that many collectives are now skillfully introducing financial autonomy and collective contracting, while recognizing that there is still much to be done to improve the range of goods and quality of them. The interviewer comments that there have been many new things brought into agriculture this year, leading Murakhovskiy to stress the value of the experience of front-ranking collectives, listing examples where awards have been presented, and individuals.

Asked by the interviewer about this "try-out" year for all the innovations, Murakhovskiy explains that the tasks set by the Congress require a completely new approach, in which people are the main productive force. People are to be taught to observe the correct technical horticultural procedures always, to strengthen production discipline in order to produce quality output, preventing losses. "This requires that we today organize a systematic and permanent study structure for the cadres at all levels," he says.

He goes on:

"This year has been a try-out for our knowledge, skills and potential, and it has to be said that we have good results, and next year we will be increasing the area cultivated using intensive methods. Additional people will be brought into this work, which means we have to expand teaching, improve qualifications and knowledge." The new forms of organization dovetail the interests of every individual worker with those of the collective and the state, he says, continuing: "If a worker has a material interest,

if he can see that he will be both materially and morally encouraged for the results of his labor, he is going to try with all his strength to get the best possible results." He says that this is confirmed by the example of the intensive methods now in use in Novosibirsk Oblast, Krasnodar Kray and Stavropol, the Ukraine and Belgorod-Kursk Oblasts. This winter this experience has to be used to prepare people even better for spring field work and the 1987 harvest.

Asked for his attitude to individuals' initiative, Murakhovskiy explains that he supports the efforts of all creative people, as long as their initiatives do not hinder current work or impair production discipline where the technology for cultivating a particular crop is already established. He says: "Exceptional opportunities have now been created for those running kolkhozes and sovkhozes and the specialists to display initiative and independence in their work."

Murakhovskiy continues: "But this initiative and independence in work must be based on the economic viability of the farm."

He quotes the central authorities' decision on improvement of the economic mechanism which also specified that each farm has to operate on the principle of self-financing, so this means on profits. He says:

"If a kolkhoz or sovkhoz makes profits, has money, then let this money be used entirely for the development of the socioeconomic basis of the kolkhoz or sovkhoz. They can build housing, a palace of culture, a sports hall, swimming pool, a bathhouse, a sauna--everything people need. But all of this has to be done with the funds earned by the labor collective. Unfortunately, we do still have some managers who would like to achieve prosperity not through labor and the results of that labour, but by fiddling with the facts. Of course, this does not increase our quantity of food products, or grain, or meat, or milk, so you cannot build prosperity on that. This is why the party condemns this and the people support such decisive action. I think that in the near future there will no longer be such mavericks [okhotniki] and no applause for fiddled figures."

The interviewer moves the conversation on to Moscow's warm reception for this year's fairs, which enlivened matters. The interview continues:

[Murakhovskiy] "The Muscovites saw that the agro-industrial complex does have the foodstuffs, does have the food products which meet the requirements of the population of our country. At the same time, the fairs demonstrated that, unfortunately, we still do not know how to do our marketing properly, so that we are obliged to make up for the shortcomings we have in commerce by setting up this kind of large-scale commerce by kolkhozes and sovkhozes in the markets. I think that this form of commerce is going to develop and get stronger increasingly widely, because at the moment each kolkhoz and sovkhoz has the right to sell a total of up to 30 percent of its planned output, and all of its above-plan output, at contract prices. And as soon as the question of incomes and profits is posed, it is advantageous to each farm to put some products on the market, sell them and receive additional income."

[Interviewer] "Yes, if you take into account the millions-strong army of amateur gardeners, we could be swamped by fruits and vegetables.

[Murakhovskiy] "It is a question of organization. We have to improve the organization, and do it in such a way that it should be convenient and advantageous to market these products. And the most important thing is that our people benefit from this, because they get high-quality produce." He gives examples.

[Interviewer] "So the feeling of being one's own boss that has now appeared in people, the feeling of being one's own boss was somewhat forgotten.

[Murakhovskiy] "Nor is it easy to engender this, because for many years we were actually weaning the kolkhoz and sovkhoses off trading in the markets. At that time we had introduced a system of state procurement alone, there was 100 percent procurement, and now we are permitting the marketing of a proportion of this produce. This is in fact putting into practice those ideas spoken of by Mikhail Sergeyevich Gorbachev at the 27th Congress on using Lenin's ideas of a tax in kind [prodnalog], on the development of the relationship between goods and money in our socialist economy. All this should serve as a kind of mighty stimulus, a spur, to the development of production. And the examples of these fairs, the example of the marketing of this produce freely in the market at contract prices--they stimulate production and increase output of produce. And all these aspects are positive, and the more of these products appear in the market and in the shops, the cheaper they will become.

[Interviewer] "Yes, and then the prices in the market become an unpleasant memory."

To close, the interviewer recalls that the professional day of the 40 million people employed in the agro-industrial complex, who produce one-third of the country's national income and 96 percent of the country's foodstuffs, is approaching and invites Murakhovskiy to express his attitude. Murakhovskiy singles out a feeling of optimism for the 5-year period and sends his greetings to all workers in the sector for the professional day, 16 November.

/8309

CSO: 1824/74

REGIONAL DEVELOPMENT

ARMENIAN GOSAGROPROM OFFICIAL ON APK RESTRUCTURING

Yerevan KOMMUNIST in Russian 28 Sep 86 p 2

/Interview with R.A. Sukhudyen, 1st deputy chairman of Gosagroprom and minister of the Armenian SSR by KOMMUNIST correspondent V. Zakharyan; date and place not specified/

/Excerpts/ The reorganization which is taking place in all spheres of our life dictates a need for a basically new and creative approach for solving key problems.

In order to achieve this, each individual must possess a good understanding of the importance of the reorganization and the people responsible for production must relate to it from a standpoint of personal responsibility, professional obligation and ardent interest in achieving the assigned goal.

The manner in which this task is being solved within the republic's Gosagroprom system and other problems associated with the creation of an optimum economic mechanism were the subjects of a discussion which KOMMUNIST correspondent V. Zakharyan held with the 1st deputy chairman of Gosagroprom and minister of the Armenian SSR R. Sukhudyen.

/Question/ Robert Askanazovich, the Editorial Board is receiving many letters and materials in which the leaders of RAPO's /rayon agro-industrial associations/ and farms are expressing dissatisfaction with the fact that a stream of endless directives and instructions is hindering the development of initiative and independence, undermining the prestige of leading economic organs in the various areas and disrupting the normal rhythm of operations. Some of these materials have been published in our newspaper and thus in all probability you have been able to acquaint yourself with them in greater detail. Is this not so?

/Answer/ We have also received such complaints. I can only agree with the fact that for the most part the authors of these materials were correct. Truly, the flow of circular letters and telephone messages from above calling for the commencement or completion of an agricultural campaign, the launching of a campaign against pests and diseases or for work to be carried out in connection with many similar problems, all of which fall within the competence

of local authorities, is inhibiting normal work by the personnel. Thus we can raise no argument in this regard. Recognizing the negative aspect of this phenomenon and its failure to conform to the spirit and meaning of the reorganization, the leadership of Gosagroprom, oriented as it is towards the decree of the CPSU Central Committee and the USSR Council of Ministers on measures for improving the economic mechanism in the country's agro-industrial complex, is undertaking measures aimed at expanding the independence of the farms to the maximum possible degree.

Thus, commencing next year, plans will be established for the farms which will be based solely upon the procurement volumes. The manner in which these plans will be carried out will be the responsibility of the leaders and economic executives in the various areas. They must be granted complete independence in determining the best managerial model for selecting the most accurate and necessary resources and reserves for solving the assigned task.

Question In this regard, I would like to discuss one fact. Several months ago the Editorial Board entertained a visit by the chairman of the Tumanyanskiy RAPO, who expressed many interesting thoughts and observations regarding the frequently unnecessary directives which are paralyzing the initiative of the farms and hindering their operations. The Editorial Board prepared an article by Chobanyan containing all of the questions which he brought forth.

Several days prior to its publication, the author came to the Editorial Board and stated that within the republic's Gosagroprom the RAPO chairmen had been informed regarding the changes which are to be carried out next year, changes which were mentioned by you.

"This is a very wise decision and it opens up tremendous possibilities for us. The work will become incomparably easier and more interesting." Such was the reaction of a RAPO leader in a rayon considered to be far from satisfactory. And how will other rayons react to these changes?

Answer Unfortunately, there are not that many leaders who, with complete independence, will be capable of making full use of all of the advantages presented to them.

Outwardly, everybody favors reorganization and independence. Actually however, they fear independence and responsibility and they are unable or do not wish to make decisions for themselves. Indeed, it is far better in the event of failure to be able to refer to a directive instruction. Such a style of conscientious executive ability is firmly entrenched in the practice of a majority of the farms. Executive ability can be convenient. It conceals many shortcomings and yet at the same time it can be harmful to a farm. Allow me to cite just one example. During the past five-year plan, the output-capital ratio in agriculture throughout the republic declined by 6 kopecks per ruble of average annual value of fixed productive capital.

In a sense, this is a numerical expression of obsolete managerial methods which are based upon a thoroughly depraved principle that is in conflict with social interests -- to obtain more for oneself without taking into account the true requirements of a farm.

Negligible damage to one part results in the writing off of an entire machine as being unsuitable for operation. And costly purchases of livestock, seed, seedlings and feed -- all constitute a tremendous burden placed on the shoulders of the state.

Meanwhile, skilful management consists first of all of ensuring that each ruble invested in production operations produces a maximum return. But what is actually happening? For the republic as a whole, the fixed productive capital increased by 44.2 percent and the gross output volume -- by only 18.2 percent.

Up until now, the moral aspect of this problem has been ignored when analyzing the principal causes of low output-capital ratio. This is why it continues to be an acute problem right up until the present time.

Meanwhile, man suffers as a result of all of these "subjective" and "objective" causes. And the question is a simple one -- is he prepared to manage production?

Question Robert Askanazovich, is there always a simple answer for a simple question? We have many examples of individuals who perform their work poorly and whose farms, over a period of many years, fall short of carrying out the state's plans. Nevertheless, these individuals are retained at their posts despite the fact that they lack the business-like and human qualities required. Do we not have here clear examples of indifference on the part of the state, which must pay dearly for such good-for-nothing directors?

Answer Truly, we often encounter the principle of "false humanity," wherein it is believed that man must be given more time in which to prepare for his work, so that he can reveal his potential. Thus they wait for the delayed arrival of the period during which a return is realized. Meanwhile, a farm's economy is impaired to such an extent that a forceful and intelligent leader is subsequently unable to correct it. In the meantime, mismanagement, waste and ignorant and weak management produced a situation wherein we annually lost on the average up to 15,000 tons of milk and more than 2,000 tons of meat.

It was for this same reason that the grain yields did not increase in Azizbekovskiy, Talinskiy, Amasiyskiy, Martuninskiy and Yekhnadzorskiy rayons over a period of many years, in Noyemberyanskiy, Shamshadinskiy, Idzhevanskiy and Tumanyanskiy rayons -- the vegetable yields and in Goriskiy, Stepanavanskiy, Gugarkskiy and Abovyanskiy rayons -- the fruit yields. All of these rayons were characterized by violations of the production technologies and the absence of an efficient program for raising the fertility of the soil.

What does this indicate? It indicates that we still have only a few leaders of farms and RAPO's who are thoroughly prepared for directing complicated production operations.

But let us ponder this situation for a moment. Agroprom is basically a new organization and complicated mechanism which requires efficiently organized operations at all levels. Accordingly, it confronts the personnel working in this system with raised requirements. Actually, up until recently they were trained to employ administrative managerial methods with the aid of directives and instructions.

The reorganization that has been carried out is associated with converting over to economic methods of administration which assume the development of economic independence, an expansion of rights, a strengthening of economic influence and growth in the social prestige and personal responsibility of production commanders.

It would be naive to think that such global reorganization in operational style is being carried out painlessly or in the absence of expenses. But the management of the republic's Gosagroprom during this present stage views its task as ensuring that these inevitable expenses are temporary in nature and reducing the periods for eliminating them to the maximum possible degree.

We must also solve the problem of creating a reliable personnel reserve. Towards this end, the republic's Gosagroprom has created a higher school for leading personnel, the chief mission of which will be to supply agricultural production with skilled leaders in a stable manner.

I wish to emphasize once again that agricultural production workers, and particularly production commanders, must understand that the development and expansion of production operations and the strengthening of their economy must be carried out mainly on the basis of internal resources. In other words, the conditions for management are changing radically. This in turn requires a serious change in the managerial style and methods at all levels of the agro-industrial complex. And here everything will depend upon the personnel -- upon their ability and readiness to work in accordance with new developments.

The reorganization has clearly revealed two types of workers: those who work in an active, industrious and creative manner and those who carry out orders.

The first group favors the reorganization, which conforms fully to their business-like manner and enables them to reveal fully their operational style. The second group fears independence. Each day, many leaders confront the various administrations of Gosagroprom with an endless stream of questions: who will establish the sowing areas, how will the crops be distributed, who will define the livestock structure and so forth.

It will be difficult for these leaders, since throughout all of their practical experience they were trained to ask questions and carry out the work. It now turns out that they must themselves answer these questions. The time is at hand for making a decision and for bearing responsibility for that decision.

Question In conclusion, I would like to raise one other thought. An adequate amount of time has passed since Gosagroprom was organized. Yet the Editorial Board is receiving letters which claim that no substantial changes have taken place. Just as in the past, the quality of the products on the counters leaves a great deal to be desired and the market is dictating its own prices. The KAPO's in the various areas have still not become the masters of the rayons in the fullest sense of this word. Is it not possible that the "childhood" of agroprom and its rayon elements has been dragged out for too long a period? Is the time not at hand for terminating the formational period and converting over to decisive programmed actions aimed at achieving a true return?

/Answer/ I cannot agree with you completely. The creation of Gosagroprom has already today introduced some very substantial changes with regard to supplying the population with food products. I would like to emphasize one peculiarity which poses a complication for us. The fact of the matter is that the demand for fruit and vegetable products in our republic is very high. Considering the shortage of arable land in the republic, the task of satisfying this demand is a rather difficult one. Nevertheless, this task is being solved. Today, throughout the season, there is a daily per capita average of from 1 to 1.4 kilograms of fruit and vegetables -- this also is a rather high indicator.

Work is being carried out in connection with converting over to an intensive production technology. However, it bears mentioning that the intensive technology is still not being introduced into operations on a sufficiently extensive scale. Thus, only 15,000 hectares were cultivated this year using this system and this consisted only of winter grain crops.

At the present time, the task is as follows: to expand considerably the intensive grain fields by the end of the five-year plan and to introduce this progressive technology into operations in other branches.

7026

CSO: 1824/51

LIVESTOCK AND FEED PROCUREMENT

SOLUTION SOUGHT FOR BELORUSSIAN DAIRY INDUSTRY PROBLEMS

Minsk SELSKAYA GAZETA in Russian 3 Oct 86 pp 4-3

[Article by L. Kolbasko, correspondent: "In Search of an Optimum Variant"]

/Text/ About 5 years ago, while at the 1 Maya kolkhoz in Zhlobinskiy Rayon, immediately following the republic seminar conducted there on introduction of the production line-departmental system of livestock maintenance, I became interested in the degree to which a dairy complex was affected by the introduction of this innovation.

The wise and experienced chairman of the farm at the time, Nikolay Ilich Sochivko, who throughout all of his life had introduced new and advanced developments, found himself in a difficult situation:

"It would be fine in the Lvov system and yet it is not working out well at our complex. The cold and dampness emanating from the latticed floors are causing sickness among the cows. The entire departmental production line is being operated in an inefficient manner."

At the same time however, another opinion has been expressed concerning the Berezino Leninskiye Dni kolkhoz, which this year was awarded a Challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the Komsomol Central Committee and the AUCCTU based upon its winter campaign results. Gvidon Iosifovich Reut took pleasure in mentioning the Tandem milking site: "Our milkmaids dreamed of having such a working area."

But he fell silent concerning the matter of dairy barns. This chairman did not accept the latticed floors as a new innovation. A convinced advocate of organic fertilizer production, including at dairy farms, he did not "understand" their advantages.

Petr Petrovich Shkapich, the director of the Novoye Polesye Sovkhoz, did not attempt to conceal the many problems in the area of reproduction, despite the fact that the complex at this farm was considered to be one of the better ones.

Many such examples could be cited. I have intentionally mentioned some of the republic's stronger farms in order to emphasize the fact that the problems of dairy cattle husbandry have become typical and all-branch in nature. The economic leaders view the production of milk as a disgrace. Why is this?

Our operations do not appear to be too bad against the background of the all-union indicators for dairy cattle husbandry work. But our republic is located in the zone of developed meat and dairy specialization and thus other reference points are required for comparison. Such reference points are available -- 4,000 kilogram milk yields, the experience of our Baltic neighbors.

In Estonia, for example, 4,050 kilograms of milk were obtained per cow last year, with a fat content of 3.78 percent. The labor expenditures for the production of 1 quintal of milk amounted to 3.2 man-hours. A comparison was clearly still not in our favor, although in the absence of such a comparison we could not continue a discussion of exactly what is preventing our republic from appearing better. Why is it that the profession of machine milking operator is lacking in prestige? And is it really an accident that the modern poultry factories, hog complexes and beef production combines are not experiencing a shortage of personnel and are young collectives, while dairy collectives are being staffed with difficulty?

Meanwhile, our republic has not just tens but rather hundreds of costly dairy farms. The total amount of capital investments employed for farm renovation in recent years is expressed in hundreds of millions. Feed production has been singled out as a separate branch. An increase has taken place in mechanized operations. Considerable resources have been invested in breeding operations. And what about labor productivity, production costs, profitability and output-capital ratio? On the average, the republic expends more than one work shift -- 8.2 man-hours -- for the production of 1 quintal of milk. The production cost for a quintal of milk exceeds 30 rubles. Profitability, even with a change in the purchase prices which favors the farms, is increasing only slowly -- less than 0.5 percent annually.

Why is the return from a cow so low in our republic?

Let us return once again to the Estonian method. There, just as in our republic, roughly one half of the herd is concentrated at 285 complexes. (But on farms of the industrial type, the Estonian workers protect their peat and manure bedding using a mobile type of removal). With twofold milking last year, they obtained 3,950 kilograms of milk per cow, with expenditures of 2.95 man-hours per quintal of output. More than 20 of the complexes have a cow productivity in excess of 5,300 kilograms of milk, with an expenditure of 1.9 man-hours per quintal. Over the past 20 years, labor intensiveness at the sovkhoses declined by twofold and at kolkhozes -- by threefold.

We still do not have such examples. And there is no point in citing other examples of funds having been invested in vain. The expected and desired results never materialized. It is sometimes said, by way of justification, that the social aspect of production has changed. Rather than facts, stock phrases are cited as proof: "the work of milkmaids has become easier," "the culture of production has improved." Is this really true? The livestock breeders sense this more than anybody else. The economists, engaged as they are in studies dealing with labor intensiveness, share another opinion: it is not this way in all areas. In many instances, it is just the opposite.

But a chief consideration is the fact that labor productivity is increasing very slowly. Some workers in this branch service only 12-13 cows. Milkmaids equipped

with milking units service on the average slightly more than 20 cows, despite the fact that the equipment makes it possible, for the same productivity in the cows, to operate almost five times more productively.

These facts do not constitute secret material. Official data is being cited here.

The Information Service of BeSSR Gosagroprom is more willing to publish other indicators. These are "pluses" in milk yields. Increase percentages. These are used as the basis for the monthly summary on milk production.

Taken by themselves, these indicators are no worse than others, provided they are capable of being compared, that is, they take into account all of the changes which occurred during the given period, in the absence of participation by the farms themselves. In industry, for example, the prices for 1982 are used as the example. In milk production -- the basic percentage for fat content, the norm for writing off milk for intra-farm needs and in particular -- for feeding to calves and so forth. Neither one is reflected in the summaries and thus for some this becomes a loophole in the accounting procedures.

But in the process there is no increase in the dairy products.

A "plus" has been observed in the milk yields in the summaries for the past decade. In 1975, the productivity of cows amounted to 2.432 kilograms and in 1985 -- 2.503. And the fat content has become slightly worse -- by a fraction according to the economists: it was 3.6 percent and it is now 3.44. Moreover, this is really not that small when one considers that the loss of just one such "fraction" for each ton amounts to 30 kilograms. And the "fractional" loss from the 1975 productivity -- this is more than 110 kilograms!

If it is economically correct to cite these figures and to talk in the language of comparable indicators, then the true productivity of the cows over the past decade did not increase by 71 but rather it declined by 43 kilograms. In a conversion for the basic fat content being accepted today of 3.4 percent, in 1975 it amounted to 2.575 kilograms and 10 years later -- 2.532.

A simple arithmetical equation reveals that there was no such "plus." And the increase in percentages was conditional. And the loss in output was actually covered by the loophole in the accounting procedures.

And tremendous resources were actually invested in the branch, although it goes without saying that any production operation experiences difficulties from year to year in the absence of such perceptible investments. And our dairy cattle husbandry operations have at their disposal everything that is needed for operating in a considerably better manner with the same feed and the same herds.

Thus, what else is there that can prevent this from happening?

There are many examples of operators, farm collectives and individual farms obtaining 5-6 tons of milk per cow annually. And at the same time, an absolute majority of farms is obtaining 2-3 times less milk -- from 2 to 3 tons. It is not a rarity for such differences in indicators to occur between neighboring

farms. Does the fertility of the feed lands really differ to this degree? Do the pedigree qualities of the herd differ to this extent?

Certainly, this is not the problem. There are other reasons. And the best confirmation of this is the differences in the indicators for operators working even at the same farm and under the same conditions.

Thus it is not the type of farm that determines today whether an operation will be a success or failure. There are old and small farms which have high cow productivities. There are also renovated medium size farms. One also encounters large modern complexes which are performing quite well. Such a variety of farm types, despite the fact that they complicate somewhat the centralized technological administration of production, does not reduce such production to zero. The simple thing to do would be to select the optimum variant for each type, study, work out and introduce the particular type into production and at all farms on a centralized basis and obtain the same results as at a leading farm. Let the experience of the best acquire the force of a common multiplier and the increase will grow and the plus increase in size. This will occur in Puitseprom just as it will occur at hog raising complexes of the industrial type and at combines for the production of beef.

But in dairy production today there are no simple answers for the most basic of questions. How many times should a cow be milked? What should the stalls be like? How can the work performed by a farm collective be divided up more efficiently? As a rule, almost nothing is said regarding the laborious process of cleaning facilities. This problem is not discussed in a serious manner. It is obviously included in the responsibilities of machine milking operators, who obviously because of this fact service small groups of cattle. But why?

What would the situation be like at poultry factories or hog complexes of the industrial type if the economists remained silent concerning the cleaning of facilities, after including this task in the responsibilities of poultry women and livestock tending personnel?

It is here that science must play a role. BelNIIZh, BelNIIEOSKh, the veterinary institutes in Kuntsevskiy and Vitebsk, the Grodno Agricultural Institute, the Belorussian Agricultural Academy, BIMSKh and BelNII Giprotselstroy, are brought together by the Main Administration for Science of Gosagroprom for the BeSSR. And how many experimental stations are there? The arsenal is rather strong and it contains people who are capable of proposing optimum variants for the various types of farms. In such a case, the knowledge would be drawn into a single system -- a centrally introduced milk production technology would produce the desired results.

It is by no means an accident that the attention of the party's agrarian experts is being focused on the problems of an organizational-technological nature. Although they do not require capital investments, the technology and organization for labor are nevertheless of decisive importance. Old material invested in new funds is in no way suitable for the new production conditions. And of the methods which appear to be progressive and effective, it continues to remain unprofitable.

And it seems that we in dairy cattle husbandry have done everything based upon science. We substituted cattle of the black-variegated strain for local strains of cattle considered to be lacking in promise. Feed production was separated out as an independent branch. And we began building farms on a scientific basis.

One plan after another, the farms were directly introduced into production operations.

They were built and they are continuing to be built. In each oblast and each year. And what happened? In some areas they are operating better than the old farms and yet in the majority of instances -- they are operating worse. The chief consideration is the fact that in all areas they are performing worse than they should be.

The complexes, by themselves and in the absence of appropriate modernization of the technology and production organization, have not only failed to solve many of the problems at the older farms but in fact they have raised new and larger problems.

For example, a completely new question has arisen: for how many years should a cow serve production operations? (Such a question did not exist in the past for the simple reason that a good cow was milked until it reached old age).

Mastitis on a mass basis. The loss of dairy calves. Problems of the service period. Reproduction problems which cannot be solved even by an annual 30 percent introduction of first heifers. Just as in the past, there are many old, low productivity and slow-milking cows which are unsuitable for intensive management of the branch.

There are many reasons for this. This includes a 30 percent renovation of the herds. Indeed, with our 80 percent yield of offspring, 40 percent annually turn out to be young bulls. Two and a half years pass from birth to the cow stage and not less than 10 percent are lost during this period owing to natural breeding causes. No percentage has been established for zootechnical breeding. The role played by controlled dairy barns is not recognized by all. The herd is fully renovated without analysis over a period of 3-4 years. And indeed a good cow displays its productive potential only by the third or fourth calving. A good cow cannot be referred to as old even during its 10th lactation.

But cows quickly become old at complexes for other reasons: the hooves of the animals cannot endure the reinforced concrete latticed floors and asphalt surfaces of their grazing areas. The cows are not accustomed to asphalt or reinforced concrete surfaces. Their udders require dry conditions. In the complexes it is damp and cold. Thus the cows become sick. Latent and manifest mastitis destroys up to one half of the herds on some farms. This includes some of the best and more promising cows -- those with high milk yields during the peak lactation periods.

Thus it is understandable why the 30 percent introduction cannot cover these 50.

A group of scientific workers at the Vitebsk Veterinary Institute, including Doctor of Economic Sciences Yu.D. Kornilov and candidates of science Yu. P.

Isachenko, V.F. Klimchenkov and A.A. Khrushchev, have been working on this problem for many years. In that it has appeared (many complexes with latticed floors have been built and many more are under construction), a solution must be found for this situation.

The scientists working on the problems of reproduction must furnish effective recommendations for each situation -- how can these causes be eliminated? The alarm must be sounded with regard to restoring order at the complexes using organizational-technological measures and they must be converted into milk and compost factories. In order to ensure that the mistakes are not repeated, they must not be given the centralized strength of a braking action.

But no! In drawing the correct conclusion that effective reproduction is impossible under such conditions, the scientists raise a new problem in the form of a recipe and an impressive one at that! They maintain that a new type of animal must be bred, one which is suitable for the maintenance conditions found on farms of the industrial type, immune to infectious diseases and which has a mild temperament.

How much time is required for accomplishing this? And what type? With hooves that are stronger than reinforced concrete and with winter-hardy udders? It should not be farms for the cows, but rather cows for the farms.

Such lack of principle and superficiality in science perform a good service for poor economic executives and planners and a poor service for milk production. The workers attached to Gosagroprom and all of us who are inclined to trust the specialists are thus misinformed and our opinions are distorted.

The principle -- not from the top to the bottom but rather from the bottom to the top -- is typical of other studies carried out by various institutes.

It would seem that the range of problems of the Laboratory for Milk Quality of the Belorussian Scientific-Research Institute of Livestock Husbandry is clearly indicated by the very titles given to the laboratory and institute. What must be done to obtain the best milk from the cows? What should they be fed, in what volumes and in what sequence? How should they be maintained and milked so as to obtain milk of the best quality and so as to ensure that the milk formation process is carried out in the most active and productive manner?

These are very important problems. It must be remembered that a loss of just one tenth of a percent in fat content amounts to a loss of 30 kilograms for each ton. And for the republic, taking into account the present productivity, one such tenth of a percent amounts to 130,000 tons of milk or 40 million rubles.

But the BglNIIZh /Belorussian Scientific Research Institute of Livestock Husbandry/ has another concern as well -- to reduce the bacterial contamination of the milk. And indeed the milk in the udders of healthy cows is sterile!

One of the latest works of the head of the milk laboratory, Candidate of Agricultural Sciences M.V. Baranovskiy, is an attachment for a milking unit -- for cutting off the first batches of milk.

The problem of a production loss in milk quality falls within the competence of the sanitary-hygienic service, which has considerable forces and resources at its disposal. It must solve this problem. Moreover, Baranovskiy's attachment will in no way solve the problem of milk contaminated by bacteria, not even if considerable resources are allocated for its industrial production. Indeed the quality of milk is influenced to a considerably greater degree by the conditions under which milk is obtained on the public farms. At a majority of them, line units are used for milking the cows directly in the stalls. And in the near future we will no longer be able to depend upon milking parlors. Yet the problem can be solved from an organizational standpoint: the production culture should be organized so as to ensure that the stalls are clean and that the cattle are maintained under proper sanitary conditions.

Examples can be found throughout the republic of operators tending their animals around-the-clock and obtaining up to 60 kilograms of culmiferous farmyard manure daily from each cow. This is also of considerable importance. The machine milking operators have their own work to perform -- the milking of cows. Here full use is made of the productivity of the milking equipment. Zones consisting of 50 and 100 cows are serviced. Use is made of efficient methods for organizing the working positions and also progressive technological elements. Our newspaper has repeatedly carried articles on this subject. But for one reason or another they have not acquired the force of a common multiple, nor have they been given a centralized impulse. Moreover, preconceived notions and indifference have been displayed at times.

A number of materials dealing with this subject have been published on the pages of SELSKAYA GAZETA. Heroes of socialist labor Candidate Member of the CPSU Central Committee and master of machine milking at the Pamyat Il'icha Kolkhoz-Combine in Brestskiy Rayon L.D. Bryzga, chairman of the Order of the Red Banner of Labor Svetlyy Put Kolkhoz in Molodechnenskiy Rayon V.M. Kalachik and other authors participated in the discussion: scientists, livestock breeders, specialists and farm leaders. They revealed their practical experience in raising the efficiency of milk production and increasing labor productivity by means of organizational-technological factors and they cited specific unused reserves which could be put in operation by Gosagroprom for the BSSR.

The editorial board aimed these publications at responding to the deputy chairman of the BSSR Gosagroprom and chief of the Main Administration for Livestock Husbandry M.N. Dergachev. But the official response did not contain a clear evaluation of the practical experience discussed on the newspaper's pages. Is it progressive? Is it recommended for introduction into operations on a mass scale? Or is it unacceptable?

No reply was forthcoming even following a reminder. It was as though Gosagroprom had not noticed it in the issue for 5 July of this year. Thereafter an uproar arose over the problem touched upon in the newspaper. Special diligence was displayed by individual scientists attached to BelNIIZh. It was almost as though the recipes being introduced into production operations, recipes which were proposed by leading practice and other scientists, were radically usurping their authority. Was this real or imagined? Here Gosagroprom for the BSSR failed to express its opinion.

And how does one explain the program for combining science with practical experience, the concern of Candidate of Biological Sciences E. Ye. Brill, a scientific worker at BelNIIK imeni S.N. Vyshel'skiy? Here we have in mind the early diagnosis of pregnancy in cows using the radio-immunological method. This question is so delicate and so scientific that it is difficult to understand it immediately -- is it an imitation or is it scientific-technical progress? And one believes it, as the saying goes, word for word. Exactly what is the essence of this proposal?

It turns out that the radio-immunological method can determine whether or not a cow is pregnant on the 21st day following mating based upon the presence of a hormone in its milk. At first glance, this is both scientific and aesthetically pleasing. True, it is somewhat expensive. For each test, the farms in Minskiy Rayon, where this innovation has already been introduced into operations, pay exactly 1 ruble and 75 kopecks. The imported units purchased for currency were also somewhat expensive. There were other expenses as well -- the innovation required a motor vehicle, a driver, a laboratory worker for taking the milk samples at farms which had concluded an agreement with the rayon breeding station and two laboratory workers for servicing the unit itself. They established pregnancy or a lack of pregnancy through their joint efforts, but naturally there was no need for the calves to be at the farms for this purpose.

E. Brill referred to the fact that the innovation is being introduced into operations in a restrained manner and that resources are being allocated with difficulty. No haste is being displayed in placing a unit in operation at the Smolevichskiy Rayon Breeding Station. Yes and the Minsk breeders are operating on an institutional base.

Is this an accident? Is it an accident that the breeders on the livestock husbandry farms are unable to accept it or, even more important, agree with the term -- "early diagnosis"? Indeed, it is precisely on the 21st day following mating that the non-pregnant cows come into heat. Such is their physiology. And this is noticeable in the absence of any radio-immunological method: the milkmaid posts a red mark on the stall -- a conditional mark for insemination.

Meanwhile, the unit purchased for currency possesses a broad spectrum of actions. It can be used effectively in medicine and in the veterinary science. But only not in the manner being advocated at the present time by the Veterinary Scientific-Research Institute.

A number of other examples could be cited showing how science is undermined by excessive verbiage and various manipulations vying for the role of optimum variant. The responsibility for such a situation, as emphasized during the 17th CPSU Congress, lies not only with the planners and scientists but also with the workers attached to the ministries and departments. In our case -- at Gosagroprom for the BSSR -- which initiates incomplete plans and "inventions" of this type. We stubbornly adhere to the old technology and labor organization which existed 30 years ago. Thus, is it an accident that we are unable to advance beyond our old positions?

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CSO: 1824/41

FORESTRY, TIMBER

TIMBER MINISTER ON INDUSTRY DEFICIENCIES, TASKS

Moscow AGITATOR in Russian No 16, Sep 86 pp 20-22

[Article by M. Busygin, minister, USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry: "The Timber Industry: Toward a Restructuring"]

[Excerpts] Almost 70 percent of exported timber and lumber production, practically the entire cellulose, paper and cardboard output and over 80 percent of the furniture produced fall to the share of the Ministry of the Timber, Pulp and Paper, and Wood Processing Industry. This sector is a major supplier of export timber products. Hence the contribution made by timber industry workers to the national economy is as great as all the disruptions in the state plan are unhealthy.

At the same time, we have been lagging for a long time. During the last five-year plan years we underproduced approximately 100 million cubic meters of timber and over a million t of paper and other products for the country. The ministry board and its party and economic aktiv have conducted an in-depth analysis of the causes for the sector's unsatisfactory work and have made a number of substantive conclusions.

In the first place, the level of leadership on the part of the central staff (the all-union association, the main administration and the union ministry) is inadequate. This means that there is a definite break in the administrative activity between the point where the tasks are set and the point where responsibility is taken for accomplishing them, between trust in the work-force and making unreasonable demands on them, between word and deed.

Let us assume that the enterprises have asked us for capital investments, equipment, machinery and resources, and we have met them halfway by looking for ways to satisfy their requests. But then they have quite often "forgotten" to check on and ask after capacities which were not put into operation, overexpenditure and losses of raw materials, low levels of equipment utilization, unused waste products and secondary resources etc. Finally there was both the demand and the punishments, however they were, so to speak, of a secondary character--in first place there was the plan, and over there was the remainder.

Our business practice is also plagued by such a chronic ailment as an irresponsible attitude on the part of individual directors with regard to their word,

and to their promises. In placing our trust in this or that director, we had believed that his given word would be backed up without fail by a concrete act, and that any lag or violation would be eliminated. Meanwhile, it frequently happened that an assertion turned out to be merely an empty phrase, and a desire for time to take oneself out from under the bright light of criticism.

The "lessons of truth", which the 27th CPSU Congress demonstrated, set the task of making the most principled political evaluation of anyone who, by his actions, but more precisely by his lack of action, causes disorganization in the work of the labor collectives. Guided by this, the ministry board and partkom have, in accordance with the party, approached the evaluation of the work done by the chief directors of a number of subdivisions, having relieved them of the duties with which they had been occupied.

In the second place, there is the irregularity in the structure of the sector's administration. During the 11th Five-Year Plan period we worked with two ministries in association. In noting the overall positive effect of this reorganization, allow us to say that during that period the subsectors were predominated by elements of a mechanical configuration, and there was an absence of qualitative changes with regard to their management relations.

At the present time in the Karelian ASSR, in Belorussia, in the Novgorod, Leningrad and Sakhalin oblasts and in the Baltic republics, the sectorial administrative structure has begun to come into line with the changed production relations, superfluous links are being liquidated and sectorial and territorial leadership is being intelligently combined with planning.

And the third and perhaps final basic conclusion concerns the poor quality of our efforts to use the tremendous resources inherent in the mobilization of the human factor in all its many forms. We refer here to the questions of training and educating the labor force, engineering security and progressive forms of labor productivity, strengthening discipline and order and the problems of developing the social infrastructure. Frankly speaking, no effective ways have yet been found to get the accepted solutions into the consciousness of each and every laborer, each worker, engineer and director. For many of them, lagging has unfortunately become the ordinary, natural state of affairs. The explanations, as a rule, are as follows: the raw materials base, they say, has been depleted, there aren't enough logging roads, the equipment is either obsolete or not good enough, new capacities are slow in being introduced, there have been interruptions in the provision of raw materials, and so on. A lot can still be said in favor of a position of non-initiative.

It's a sure bet that the main danger at present lies in just such attitudes. It is our duty and our shared and urgent affair, to do away with inertia in thinking and to take charge of these events.

From this point of view, the approval of the CPSU Central Committee at the end of last year is quite significant as regards the initiative of the Irkutsklesprom [Irkutsk Timber Industry], the Karellesprom [Karelian Timber Industry], the Kostromalesprom, the Sverdlesprom and the Tomlesprom association collectives, by which they were obligated to fulfill no less than a fourth of the year's plan

for procurement and export of timber by the commencement of the 27th party congress, and 55 percent by 1 May 1986. The initiative was taken up not only by timber cutters, but by workers of the pulp and paper, wood-processing and furniture industries as well. The competition for greater achievements involved over two million people. The obligations were fulfilled with honor, and this laid an excellent foundation for the work done in the first year of the new five-year plan period.

A great deal has been done by economy directors, party and trade union organizations and mass political work activists to mobilize the collectives to do intensive and highly efficient work. A great deal of emphasis was placed on publicity about the competition, on the dissemination of advanced experience and on the introduction of recently-developed systems of incentives for the final results of labor. But the main thing was the moral lesson that one can work many times better and more productively.

Yes, a change for the better has begun within the sector, and for the first time in many years, we have fulfilled the half-year plan for basic technical and economic indicators.

All the same, it is still a bit early to be led astray by net gains, we are still in the initial stages of our restructuring, and there are plenty of problems. Here is a fact. During the first days of April, the Kirevlesprom All-Union Industrial Association shipped out 30 percent, and the Arkhangelsklesprom Association shipped out 35 percent of the volume of timber which was sent to the timber storage facilities during the last few days of March. That is how sharply the intensity of the work fell off for just a couple of days. What exactly happened? Did the ice thaw, making the logging roads too muddy to use? Of course not. Inertia was at work; the same inertia which remains our main enemy today, and the main obstacle to effective and highly-productive work. Even today a lot of people believe that serious work can only be done in winter, for three or four months a year. That, they say, is the specific character of this industry. Why exactly is it, then, that the collectives of the Karellesprom Production Association, as well as others, do not tolerate a sharp drop-off in their timber procurement?!

Having summarized the experience of the leaders, the ministry worked up an additional set of measures aimed at improving the work done by the timber cutters. The enterprises have begun implementing the measures.

They include, first of all, more complete utilization of equipment. If we are short of equipment now, then let's get more, so that the machines and mechanisms which are on hand are operated with full loads. No less than two shifts per day should be on the job. And three would be better, especially now when there are more hours of daylight. Collectives of the Tyumlesprom and Tomlesprom Associations have even been able to work two and three shifts per day in winter. Why could their experience not be implemented everywhere?

True, there is a psychological factor at work here. Some people argue this way: Why should I wear out my machinery in the spring and summer, when I'd be better off saving it for winter? Outwardly, such arguments look like a certain thrifty

master's reckoning. But a thrifty attitude towards machinery does not consist in keeping idle and free of rust, but in operating it correctly, tending and taking care of it.

The compulsory execution of each brigade's production assignments comprises a huge reserve. For now, every tenth such collective is counted among those which are lagging. And this is the average. But in the Komilesprom, Gorkles and Chitales associations, there were quite a few more. Again the question arises: why is it that, working in approximately identical conditions and with the same equipment, some collectives fail to meet their plan targets and others overfulfill them 1.5- or even 2-fold?

Many timber-cutting enterprises place too little emphasis on reforestation work and seedling conservation, and they violate the established rules when developing their timber-cutting operations. It is no longer possible for us to remain reconciled to this situation.

And there is another quality which the sector's workers need today. I'm referring to flexibility, mobility and the ability to find and use new production reserves. We'll never manage without this. The fact is, approximately the same thing happens in timber-cutting areas as happens in the other extractive sectors. The raw materials stocks in populated areas, and close to main transport lines are becoming more depleted. The sectors will have to move further eastward and northward, to set up new enterprises and to build new residential settlements. This is a complicated task. Moreover, the problems of these prospects were not resolved unremittingly enough during the 10th and 11th Five-Year Plan periods. As a result, the situation which has developed dictates that it sometimes takes over two hours to deliver workers to the timber-cutting areas. We are trying to rectify this matter. The decision has been made to build many more new timber economy facilities every year. But even so, time is needed to make up for what has been neglected. But we need timber right now. In conditions such as these, the shift method is indispensable.

I am firmly convinced that for us today, shifts make up both the leading edge in the struggle to fulfill our plans and are at the same time a stable and reliable home front. The immediate goal consists in greatly expanding the volume of work accomplished by this method.

We need to resolutely improve our methods of work in accordance with today's demands, and to depart from old approaches to managing this economy. We have been obliged to do this by the decisions of the 27th Party Congress and the June (1986) Plenum of the CPSU Central Committee. This has been dictated by our modern times, and by the tasks facing us in the 12th Five-Year Plan.

The sector's output growth rate for the five-year plan period is set at 18 percent. Productions associated with the thorough processing of timber will be subject to priority development. Thus, at a 3.4 percent increase in timber-cutting, paper manufacture is slated for an 18 percent increase, with a 30 percent increase in the building of standard wood-frame houses, a 1.4-fold increase in the manufacture of cardboard containers and goods related to the standard of domestic life and the economy, including a 35 percent increase in

furniture production, a 37 percent increase in stationery paper goods, and a 1.6-fold increase in wallpaper production.

Publication for these indicators, suggests an outstripping growth in the production of effective lumber substitutes and intensive involvement into economic circulation of softwoods, timber-cutting and wood-processing waste products, secondary raw materials and waste paper. The experience of the Tsentronebel, Yugnebel and Kievdrev associations in making use of production wastes, and as approved by the CPSU Central Committee, is being widely disseminated.

Serious attention is being given over to the introduction of low-waste and waste-free production methods, to the reduction of the mass-intensiveness of output (paper, cardboard, plywoods and veneers), as well as reductions in the norm for timber materials. For example the quota for timber outlays and for furniture production is to be reduced by almost 18 percent.

All this will secure a 75 percent increase in the sector's output by virtue of the saving and rational use of raw timber materials.

The extent to which new techniques and advanced production methods are being introduced is undergoing a considerable expansion, and capital investments are going to be put to more effective use. For example, in the timber-cutting industry, which is the sector's most labor-intensive, plans call for a 2.5--3-fold increase in the range in which integrated equipment, which will put an end to manual labor, is introduced.

The pulp and paper, furniture, plywood and saw-milling industries' goal oriented integrated programs outline the major primary tasks for this sector.

Capital construction is to handle measures aimed at reducing the number of projects under construction at the same time, at concentrating capital investments in more decisive directions, at the development of an in-house construction industry base and the use of this base to increase the volumes of construction by the economic management method.

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CSO: 1824/24

POLICY, ORGANIZATION

AZSSR DEPUTY MINISTER STRESSES EFFICIENCY IN KOLKHOZ TRADE

Moscow KOMMERCHESKIY VESTNIK in Russian No 14, Jul 86 pp 6-7

[Article by V. Gulashvili and S. Rashidov, KOMMERCHESKIY VESTNIK special correspondents, on a report by Azerbaijan SSR Deputy Minister of Trade S. M. Bayramov: "The Kolkhoz Market: What Should It Be Like?"]

[Text] Basic Directions of USSR Economic and Social Development for 1986-1990 and for the Period to the Year 2000 specify measures for improving the supply of food products at kolkhoz markets for the population.

A great deal has already been done in Azerbaijan SSR for the development of kolkhoz trade. One hundred and sixty-nine markets are already in operation. Thirty-eight of them are in Baku. In the past 5 years alone, new markets have been opened in 16 of the republic's cities. Four million rubles went into their construction. Today the share of kolkhoz trade in total sales of products in Azerbaijan constitutes 11 percent. The material and technical base of kolkhoz markets is being bolstered. The market demands constant attention and active participation. This is why problems on whose solution future kolkhoz trade depends are of such concern. Azerbaijan SSR Deputy Minister of Trade Sabir Musayevich Bayramov on the request of our correspondents describes what has been done and what remains to be done in carrying out the tasks outlined in the food program.

"Today's markets are a complex operation with their equipment, refrigeration and storage facilities, transport, small-scale mechanization equipment and dispatcher operations. Supplying of food products to the population largely depends on how rationally and effectively this mechanism is utilized."

Musayevich proposed to us to visit Baku's markets together with S. Mamedov, the chief of the Republic Administration for Kolkhoz Markets, in order, as they say, to see with our own eyes both the achievements and the deficiencies of kolkhoz trade.

We are at the city's Central Market, the largest in the republic. Its trade stalls have about a thousand places. Here also are to be found food laboratories, storage rooms, a large weighing operation, a medical station and radio broadcasting facilities by means of which kolkhoz farmers and visitors are informed concerning trade rules, existing rates of market charges and services provided. The market also has its own hotel. But its chief merit is the Bureau of Trade Services (BTU).

In the republic, the bureaus began to operate in 1979. In this time, their number reached 58. Their prestige is constantly growing. It is convenient and advantageous to sell agricultural products wholesale, especially for owners of private subsidiary farms. They do not have to spend time on the trade process, which is especially important during the period of seasonal agricultural work, and they receive immediately the money for the products sold. This form is being strengthened, but not everything is proceeding as yet in the way that the organizers would like to have it.

While in the Central Market's director's office, we were involuntary witnesses of a commercial transaction that failed. A call came through from Kubinskiy Rayon. The owner of a private subsidiary farm offered for sale at the market one and a half tons of apples. The director refused. The reason was lack of motor transport. Yet all these apples could have been sold with a small markup for 1 ruble 66 kopecks compared to the average market price of 2 rubles per kilogram.

"The kolkhoz-market administration has been powerless to help in this matter," S. Mamedov says. "Our transport and dispatching base has only 12 motor vehicles, most of whom serve the markets within the city. To send them outside its limits is impossible. Consequently, a large amount of organizational work for improving the sale of product surpluses from kolkhozes, sovkhoses and private subsidiary farms is frequently reduced to zero."

"Unfortunately, the transport problem is one of the most acute in the work of the Bureau of Trade Services," S. Bayramov joins the discussion. "Prior to 1980, the administration had a motor-vehicle transport column consisting of 28 trucks. But then it was reorganized, bolstering the city's motor-vehicle fleet. Motor-transport questions are outside the competence of our ministry. But we have repeatedly come out with proposals for assigning additional motor vehicles to the Market Administration. However, the question remains unsolved so far."

"I believe that there is no need to convince anyone of the effectiveness of the Bureau of Trade Services. Let me just cite a few figures. In 1985, 1.5 times more agricultural products were sold to the population with the help of the Bureau of Trade Services than in the preceding year. The size of deliveries of food products increased significantly. It is estimated that the relative saving of time for rural workers taking advantage of the bureau's services amounted to 45,000 man-days. This made it possible to accomplish additional work on the republic's fields in the amount of 540,000 rubles, while the economic gain for buyers totaled 527,000 rubles. The market administration received a net profit in the amount of 67,000 rubles from the Bureau of Trade Services."

Practice shows that the effectiveness of the operation of the Bureau of Trade Services could be significantly higher if it were possible to create a specialized motor-vehicle transport column and to grant bureau personnel broader rights for the purchase of products in all of the nearby rayons."

...That day we visited several of Baku's markets. At trading places set aside for cooperative members, private traders (you can be sure they were not idle) trade briskly, for cooperative members here are not frequent guests). At stores with "COOP" signs, the assortment is skimpy: canned goods, shrunken cabbage, flabby pomegranates... Customers do not even ask for dried mushrooms, dried apricots, sauerkraut, pickles and other traditional cooperative-assortment products evidently because they have become habituated to their absence. The counters of fruit and vegetable stores under the republic's agroprom look no better.

"Incidentally, these stores have the possibility of competing successfully with private sellers," S. Bayramov states. "At our markets, 18 stores with a total space of 1,042 square meters and almost 800 trade places have been assigned to cooperative trade and 20 stores and 284 trading places and an additional 250 places in trading stalls to state trade. The wherewithal exists to develop active trade. However, in 1985 of 140,000 tons of agricultural products brought to Baku markets, state trade put on sale only 11,800 tons and cooperative members even less--2,500 tons. As you see the correlation does not favor our partners. This is speaking of quantity.

"We cannot remain silent about quality. The impression is created that agroprom and consumer cooperatives are not concerned with expansion of product assortment nor with improving their commodities' appearance. Sometimes customers at stores of these organizations even in the case of commodities interesting them refuse to buy them, but right next to them, those same onions and that same cabbage look more "appetizing" at the private trader's and ask to be put in the basket.

"In our view, the situation could change should sorting centers and areas be created on consumer-cooperative and agroprom farms equipped with modern equipment and should the existing fruit-and-vegetable conveyor of "field--store" be improved.

"I would like to speak in particular concerning participation of kolkhozes and sovkhoses in market trade. This question is not an easy one. We are looking for more effective forms of cooperation with them. According to existing practice, each kolkhoz has its own specialized stores at the markets. Thus Kolkhoz imeni Lenin of Shekinskiy Rayon trades at Kolkhoz Market No 3 and Shafag Kolkhoz of Kasum-Ismaylovskiy Rayon at Market No 5. Such stores have also been opened at other markets in the city.

"Representatives of the republic's Market Administration constantly meet with heads of kolkhozes and sovkhoses and conduct discussions with the owners of private subsidiary farms. They are given special invitations to participate in the sale of surplus products at kolkhoz markets. As a result of the work done, last year 154 contracts were concluded with kolkhozes and sovkhoses for

the delivery of more than 33,000 tons of various products. However, kolkhozes and sovkhoses failed to fulfill their commitments. They brought to markets 0.01 percent of the total volume of products received for sale. And this was at a time when farms had been granted the right to sell through the market network up to 10 percent of all produced agricultural products. Furthermore, this percentage is reckoned for them as fulfillment of the state plan. Undoubtedly, this is beneficial to farms. But it is a lot of trouble for them. Occasionally problems arise in connection with transport or because of a shortage of free hands. Sometimes weather conditions interfere and once in a while simply unwillingness. I think that with an able, interested farm, the sale of products to the city will bring considerable income to kolkhozes and sovkhoses, and city dwellers will be better supplied.

"Today's market is a special trade organization. But its objectives are to provide the population more fully with diverse goods of good quality, which, as they say, must suit the taste of everybody. For the attainment of these objectives, we shall introduce very shortly new forms of trading, for example, so-called "flying trade," where market products are sent to the entrance-gates of large industrial enterprises. Taking into consideration the wishes of workers, it is necessary to open mini-markets in remote districts. Evening markets will also be popular, which in summertime will be operating from 16:00 hours. We shall also strive for improvements in trade organization by means of delivery contracts concluded with farms. But these contracts must be given juridical force. Furthermore, we propose to consider the state plan of agricultural products' delivery to be fulfilled only in the case where kolkhozes and sovkhoses have sold at markets the obligatory 10 percent of a grown crop.

"All these are our prospects. They are being realized. But at the same time, existing problems urgently require solution. And it is necessary to approach them comprehensively. Thus, further development of the Bureau of Trade Services depends on republic economic organs capable of solving the transport problem. It is also necessary to grant the right to the Market Administration to expand areas of operation in the purchase of products from owners of private subsidiary farms, kolkhozes and sovkhoses.

"I would like to appeal to our agroprom and consumer-cooperative partners: more personal interest, less inertia in the general work of providing the population with foodstuffs. These organizations' stores at kolkhoz markets must become not only competitive but also owners with equal rights looking after their customers.

"Only through joint efforts will it be possible to solve one of the most important tasks set by the party and the government to significantly improve provision of the republic's population with food products."

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CSO: 1827/144

POLICY, ORGANIZATION

FUTURE CHANGES IN CONSUMER GOODS, SERVICES SECTORS, 1986-1990

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 9, Sep 86 pp 49-55

[Article by N. Smetanin, department chief at Gosplan USSR, under the rubric "Problems of Increasing Goods Output": "Realizing the Comprehensive Program for Developing Production of Consumer Goods and the Services Sphere in the 12th Five Year Plan"; passages enclosed in slantlines printed in boldface in text]

[Text] Improving the satisfaction of popular demand requires not only increasing production of consumer goods and developing the services sphere; it also requires significantly improving their quality. It is also important to ensure continuing renewal of the assortment of products. Realizing the measures outlined for the 12th Five Year Plan will permit solving these problems to a significant degree.

An extensive program was outlined at the 27th CPSU Congress for increasing the material welfare of the Soviet people, and for developing distributive relationships. However, it was stressed in the Political Report of the CPSU Central Committee that it will remain unfulfilled, "if we are unable to /saturate the market with a variety of goods and services/."

The 12th Five Year Plan has a number of significant peculiarities in the area of satisfying popular demand. They are found first of all in the fact that during the years 1981-1985, primary popular demand for many industrial goods was satisfied. At the present time the supply of such goods as wool and silk fabrics, bedding and linens for the newborn, knitted underwear, haberdashery articles, rugs, radios, cameras, tape recorders, TV's, refrigerators, bicycles, household lamps and a number of other articles, is sufficient. Sales will increase further only when the qualitative characteristics of the goods provide an incentive for buyers to expand their wardrobe or replace the durable goods which they currently have. This brings about the /need to actively restructure production to make new kinds of goods in a greater variety, of high quality, which meet the needs of the purchasers/.

¹ "Materials on the 27th Congress of the Communist Party of the Soviet Union," Moscow, Politizdat, 1986, p 47.

In connection with the work being carried on in the struggle with drunkenness and alcoholism, in the 12th Five Year Plan there will be a significant increase in popular demand for consumer goods and for paid services, due to the reduction of expenditures for acquiring alcoholic beverages.

During the years 1986-1990, along with the development of the form of free services and benefits which has evolved, /for the first time the task has been set to sharply increase the volume of paid services to the population./ "Questions of developing the sphere of paid services are to be resolved in a new way, energetically, and on a broad scale... In a short while an essentially new branch is to be created--a modern, highly-developed sphere of services which takes in the people's everyday life, their relaxation, tourism, and leisure time. We must achieve a decisive turning point in this important matter in the 12th Five Year Plan."²

Paid services should "drain off" to itself an ever increasing proportion of the disposable income of the populace. At the same time /the problem of raising the quality of the services offered is just as acute as that with respect to consumer goods./

Thus, the associations, enterprises and organizations which produce consumer goods and render paid services to the populace must solve a very complex, twofold problem. On the one hand, a sharp increase in the growth rate of consumer goods production and volume of paid services must be achieved; and on the other, significant improvement in quality of products must be assured along with renewing their assortment and increasing output of goods with principally new consumer qualities, and organizing new kinds of services.

The production volume outlined in the five-year plan can be characterized by the following data: On the whole for the five-year plan production of non-food items will increase by 35 percent, while at the same time output of goods for cultural-domestic and household purposes will increase by a factor of 1.5. Over the five-year period 51 million radios, 50 million TV's, 31 million refrigerators, and 30 million washing machines will be manufactured. Sales of alcoholic beverages in 1990 will be significantly lower in comparison with 1985.

Production of goods by light industry stipulated in the plan for the 12th Five Year Plan will be greater than that assigned in the Comprehensive Program. Exceeding the tasks for this program is envisaged for all goods from light industry except for synthetic fabric materials, dishes and chinaware. The most significant growth is envisaged in production of silk fabrics, knitted articles and products from the garment industry.

In order to expand the capabilities and increase the interest of all enterprises for production of a variety of goods, starting with the 12th Five Year Plan, the USSR and union republic Councils of Ministers will approve assignments in the five-year and annual plans for ministries and departments (except for light industry) to produce non-food consumer goods, instead of

² "Materials on the 27th Congress of the Communist Party of the Soviet Union," p 263.

the previously-established indicator for production of cultural-domestic and household goods, which is retained as an estimated indicator. The new indicator, as compared with the previous, includes in addition articles in kit form and all kinds of building materials; gasoline; books; medications; and all other non-food consumer goods.

During the five-year plan the production volume of all these articles is to increase by a factor of 1.3; of this growth, the volume of goods for cultural-domestic and household purposes is to increase 1.5-fold. Production of almost all important kinds of non-food products is planned at the level of the tasks of the Comprehensive Program and higher. Only certain items--specifically motorcycles and motor-scooters--are excepted; however, at the same time orders from trade for them will be completely satisfied--except for orders for heavy motorcycles, the production of which cannot yet be increased on the required scale due to lack of the required capacity.

For this very same reason production of chinaware and dishes is envisaged at a level somewhat below the tasks for the Comprehensive Program. Mintorg [Ministry of Trade] has not approved indicators stipulated in the program for production of cameras; implements and tools for private subsidiary farms and for gardening; nor for high-quality glass dishes. Therefore lower tasks have been established in the plan, in order not to produce goods "for the shelf."

During the 12th Five Year plan there will be a significant increase in the production of goods in the "1,000 little items" category. The trend toward a small steady increase in their proportion of the overall production volume of non-food articles observed in recent years will continue. This is brought about by an increase in the degree of satisfaction of popular demand for the basic kinds of goods and an increase in the dynamic nature of the change in consumer demand.

In planning production of goods in the "1,000 little items" category, there is of course no need to centrally define the range of goods from A to Z--even if it were possible. The Ministry of Trade and its local organs, the ministries producing these items, and the union republic Councils of Ministers ought to establish their makeup, taking into consideration current popular demand for them. There must be improved coordination of their production within regions and of intra-regional trade in these goods. For example, the Belorussian, Latvian, Lithuanian, Estonian, and Moldavian SSR's have set up a Council for coordination of goods production which is not centrally planned. Their work experience deserves broad publicity in the press, in-depth analysis, and further dissemination.

The plan stipulates on the whole full satisfaction of the needs of the populace for construction materials and lumber, for motor vehicle fuel and other goods for production and technical purposes. The sale of bricks, sand, gravel, crushed stone and the like to the populace must be increased. All of this requires that Mintorg, the Central Union of Consumers' Cooperatives (Tsentrsoyuz), enterprises and establishments of other ministries and departments which have been granted permission to sell the aforementioned materials, organize this work efficiently, deliver the goods to the populace, and seriously set about resolving the given question.

Unfortunately, for the time being there are still great shortcomings in this matter. For example, in Moscow Oblast the sale of nonmetallic materials has been formally organized. However, one can officially purchase these goods only at four lumber yards, and there are 40 rayons in the oblast. Naturally the degree of satisfaction of the needs of the populace through the state or the cooperative trade system is very low. As a result, most of these goods are being acquired by illegal means, as in the past.

The "sore spot" in production of consumer goods is still the low quality and slow pace of renovation of production. A large number of the TV's, tape recorders, refrigerators, washing machines and other complicated household appliances do not last for their guaranteed period of operation. Annual renovation of goods for cultural-domestic purposes produces only very minor changes; at the same time, production of new goods is planned in small lots only. Few samples of new goods were presented at the trade fair for 1987 sales of household goods. At the same time Minlegpishchemash [Ministry of Machine Building for Light and Food Industry and Household Appliances], for example, has offered no new models of electrical household appliances and instruments whatsoever, although it is the leading ministry for producing most of them.

New kinds of products make up only an insignificant portion of production for many ministries. For example, in the national economic plan, Minshtekhprom [Ministry of the Electrical Equipment Industry] envisages enacting only three designations of new goods in the 12th Five Year Plan: electric ranges with titanium coating, and in 1989 a storage-type electric water heater and an air conditioner with a heat pump.

/A number of ministries plan no production whatsoever for principally new goods with qualities attractive to consumers/ and modernization of previously-produced products prevails. For example, the five-year plan for Minpromsvyazi [Ministry of the Communications Equipment Industry] includes tasks for developing only eight new kinds of radio-TV sets. The situation is similar in other ministries as well; moreover, in most cases these tasks have been set for the last years of the five-year plan.

Of course, not all questions of raising the quality of the products can be resolved through the plan. A lot depends directly on the enterprises themselves--on their initiative; on intensifying material interest; and on increasing their independence. The change in attitude now taking place in the country and in the working collectives will be of paramount importance. The new procedure for releasing goods through the Gosstandart inspectors will also have a positive influence. It goes without saying that material liability for production of poor-quality goods must be increased in every way. Appropriate measures are already being taken. As is well-known, it has been determined that for the 12th Five Year Plan all expenses for repairs made under warranty for poor-quality goods from the radio equipment industry which require repairs before they should, will be counted as losses to the appropriate enterprises when summing up the results of their economic activities; will not be counted as production costs; and will not be paid for by the customer as was the case until now.

/As far as renewal is concerned, the mobilizing role of the plan must be used here to a greater extent./ It would appear that an indicator should be introduced to the annual plans, which characterizes the level of renewal of production of consumer goods, to enlarge the role of the previously-established indicator for production of progressive, highly-efficient kinds of goods. The search must be continued for methods of actively influencing planning and the economic mechanism to accelerate renewal of manufactured goods, and today this is one of the most important tasks.

A great deal of work is to be done in the 12th Five Year Plan on developing paid services. The plan for 1986-1990 envisages increasing their overall volume 1.5-fold, and their growth rate will overtake the growth rate for production of consumer goods.

In the area of domestic services, two interrelated problems must be solved. The volume must be increased for those kinds of services for which popular demand is not yet satisfied, and the quality of the services offered must be fundamentally improved. As far as the first of the designated tasks is concerned, it is primarily a question of services such as housing construction and repair, setting up garden plots, construction of private garages, and also repair of vehicles, household machines and instruments.

It is planned to develop services at an especially high rate for housing construction and repair, for building garden sheds, and domestic building projects and garages on order by the populace. During the five years their volume is to increase threefold. At the same time for the first time tasks for rendering these services have been set not only for enterprises of the union republic ministries of domestic services, but also for subcontractor organizations from construction, and other ministries and departments.

The necessary ceilings for subcontractor work have already been allocated to the union republic Councils of Ministers for 1986 and 1987; in the future this question will be resolved during development of annual plans.

At the same time in a number of republics proper attention is not devoted to organizing these services and they do not make use of the ceilings, which jeopardizes the fulfillment of the task indicated. For example, for the first quarter of 1986, no plan was established for furnishing domestic construction services at the citizens' expense on a subcontractor basis in the Kazakh, Moldavian, and Kirgiz SSR and in certain other republics.

The use of construction units belonging to industrial, transportation and communications enterprises and those of the agroindustrial complex for repair of departmental housing at the citizens' expense; construction of individual houses for their workers; and also expansion of work on improved decorating and equipping of apartments at the citizens' expense, should be a promising direction for expanding these kinds of domestic services.

On the whole construction services to the population are at the present time poorly developed. Increasing their volume at an accelerated pace should be the goal of not only special construction organizations, but also every enterprise that has its own construction subunits.

Another major sphere of everyday services to the populace which will receive accelerated development in the 12th Five Year Plan is auto service. The task has been established to completely satisfy popular demand for repair and technical servicing of means of transport by 1990. For these purposes, it is planned to increase the volume of services offered and to establish the appropriate material base. By the end of the five-year plan new service stations for private automobiles are to be built and put into operation--the appropriate capital investments have already been allocated for this. Popular demand for repair services for complex household appliances and instruments will also be completely satisfied. In addition to allocating the resources, certain organizational changes are needed as well to effectively complete this task--specifically, in order to supply spare parts to the repair enterprises through the system of Gossnab USSR.

Improving services to the populace for repair of radios and TV's will be facilitated by such measures as sending to the manufacturing ministries the work for warranty repair services for these devices. An indicator for the volume of these services has been established for the plan, and in 1989-1990 they will be completely carried out at the enterprises of the given ministries.

Increased volume is not envisaged in the plans for certain kinds of domestic services; for example, tailoring clothes for individuals. The volume for these services will practically remain at the 1985 level. This indicator was determined in consideration of popular demand as well as the need for more rational use of labor resources.

To the extent that the material and cultural standard of living of the Soviet people has increased, popular demand has grown significantly for a large number of services connected with organization of leisure time, recreation and health care--that is, for services at cultural establishments, at resorts and sanatoria, and at tourist and sports organizations. The most significant changes are to occur in this area in the 12th Five Year Plan.

The plan envisages significantly stepping up the activities of cultural establishments and organizations on the basis of cultural and sports complexes and centers for new forms of service to the populace, clubs according to one's interests, and amateur associations. On this basis, without significantly expanding the system of cultural-educational establishments and theatrical-entertainment enterprises, it is planned to expand the volume of services of cultural establishments (besides resources of movie houses), to include parks for culture and relaxation.

Successful realization of these tasks will depend to a significant extent upon the activities of the local Soviets and cultural organs which. Guided by the decisions of the 27th Party Congress, they must ensure introduction of new forms of cultural services, step up coordination of the work of the cultural establishments without regard to which department they belong, and ensure maximum use of the material base which has been established.

It is planned to significantly develop the services of resort and sanitarium establishments. During the five years they are to grow by 25-30 percent in comparison with 1985. Carrying out this task envisages expanding the resort and sanitarium system; however improving the use of the material base which already exists is very important. This pertains primarily to those organizations subordinate to ministries, departments and Councils of Ministers of the union republics.

Of course the departmental establishments, in terms of their capabilities, are inferior to those of the AUCCTU; however, the existing differences between the services rendered for a single person at departmental establishments and at those of the AUCCTU can hardly be justified.

Significant expansion of paid tourism is also envisaged in the 12th Five Year Plan. At the present time the amounts spent by the populace for such services are modest. To the extent that the material welfare and spiritual needs of the working people have increased, the role of paid tourism will grow quickly; therefore, a 48-percent increase in the volume of such services is envisaged by the end of the five-year plan. Realizing this task envisages strengthening the material-technical base of the tourist organizations, constructing transport enterprises, funicular passenger railways, tourist complexes, hotels, bases and so on. The number of places available year-round in the tourist establishments of AUCCTU will increase. And, additional motor transport will be allocated for organizing tourism.

The high development rates outlined for the given kind of services requires serious restructuring of the work of the tourist organizations, which must actively assimilate the new forms of recreation and tourism--programmed recreation; family and individual tourism; offering tourist services on a commercial basis; and so on. Output of tourist and sporting goods must be expanded, and the vacationers must be offered additional services above that provided for in the cost of the trip.

At the present time additional services for tourists--souvenir sales, organization of entertainment, domestic services, public catering, and others--are major sources for expanding the volume of paid services.

In spite of the fact that an extensive system of physical culture and sports establishments has been set up in our country--many stadiums and swimming pools have been built--they are not being used well to serve the populace. It is planned to increase the volume of these services several times--which will permit improving the needs of the people--although the problem of total satisfaction of demand for these services will not yet be solved.

In order to develop services of physical culture and sport, the appropriate funds are being allocated to strengthen the material base. However, improving the use of already-existing physical culture facilities is of paramount importance, just as with respect to many other kinds of services.

A great deal of work will be carried out in the 12th Five Year Plan to enlist ministries and departments to render paid services to the populace, when this is not their basic function. The corresponding tasks were approved for such ministries for the first time in the plan for 1986.

At the same time one should bear in mind that they will be offering a variety of paid services to their own workers. The tasks have been set differently according to the group of ministries. The indicators for volume of services realized per worker were used as the standard, and were calculated for those departments in which this work was already successfully organized. Thus, the planning for these services was carried out not on the basis of the level achieved--under which, as is well known, the ministries and enterprises which had already achieved good indicators quite often found themselves in the worst circumstances. As a result, significant expansion of the volume of services is planned, and above all in those ministries and at those enterprises at which this work was conducted poorly, for a variety of reasons.

In working out plans for the subsequent years of the 12th Five Year Plan, indicators established for 1986 and the growth rates stipulated in the decree of 31 July 1985 on rendering paid services by ministries and departments of different types, were used as the basis.

In compiling the plan for 1986-1990, Gosplan USSR for the first time defined the production volume of consumer goods in retail prices. This indicator permitted more precisely tying in production of consumer goods with the physical indicators, and also with the demand for goods defined in the planned goods turnover. It became possible to more rapidly and effectively influence the planning for goods in volumes necessary to ensure equilibrium in the goods turnover. This is especially important in conditions of the sharp decline in the sale of alcoholic beverages and the need to expand the goods turnover by means of other products and articles.

For all consumer goods as a whole, the given indicator will be an estimated one, and for non-food items (not counting goods from light industry) it will be the approved indicator. This is brought about by the fact that the entire system of indicators from Gosagroprom (State Agroindustrial Commission), which is the basic producer of foodstuffs, is targeted toward increasing the output of consumer goods; therefore, naturally there is no need to introduce yet another approved indicator, even if it were synthetic. The situation for light industry is similar. Here also all indicators define growth only for consumer goods. In this connection it is not production volume which is approved in the plans, but the volume of consumer goods delivered, in retail prices.

For ministries and departments, this indicator will be the approved one for production of consumer goods, when that is not their basic activity.

For successful development of tasks for developing consumer goods production and the services sphere, a procedure has been worked out for delimiting ceilings for labor for rendering paid services to the populace, and for their material-technical support, and for ministries of a different type as well; and a method has been more precisely defined for planning production of consumer goods and services to the populace.

Commencing with the 12th Five Year Plan a separate section of the national economic plan will be published: "Production and Sales of Consumer Goods and Development of the System of Paid Services to the Populace." In addition to the volumes of production of goods and services, it will stipulate the ceilings for capital investments, tasks for retail goods turnover, and other indicators. Subsequently to be included are the resources necessary for realizing the production program, which are at the present time estimated.

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CSO: 1827/11

ENERGY COMPLEX ORGANIZATION

KIEV SEMINAR ON USE OF ENERGY IN UKRAINE

Kiev ENERGETIKA I ELEKTRIFIKATSIYA in Russian No 3, Jul-Sep 86 pp 54-56

[Article under the "General" rubric, authors unnamed]

[Text] A sectoral, practical scientific seminar entitled "Comprehensive Systems of Management of Production Quality and Effective Use of Resources in the Energy Industry of the Ukrainian SSR" took place in Kiev from 18-20 June 1986, in order to study the results of work done in the sector to create comprehensive systems during the 11th Five-Year Plan, to analyze and generalize on the experiment of developing and implementing them, and also to discuss the main scientific, organizational and methodological problems of improving this work in the 12th Five-Year Plan.

Representatives from all industrial energy associations in the republic and many enterprises in the sector participated in the work of the seminar. Those who manage the creation of comprehensive systems on site and those who directly carry out the work were invited. Moreover, individuals responsible for a host of administrations of the USSR Minenergo [Ministry of Energy], of the Ukrainian Republic Administration of Gosstandart [State Committee for Standards] of Ekonomtekhnenergo [Economic and Energy Technology], the head organization of the sector of creation of comprehensive systems of production quality control, and of the scientific institutions of Kiev.

During consideration of the problems of creation, improvement and development of comprehensive systems of production quality control and of the effective use of resources (KS UKP and EIR) in the republic's power engineering industry, the following questions were discussed:

the main scientific and practical conclusions flowing from the results of the work of the industrial energy associations and enterprises in the power engineering industry of the Ukrainian SSR to create comprehensive quality control systems during the 11th Five-Year Plan;

the challenges of the associations and enterprises of the sector in finalizing creation of comprehensive systems, and in their improvement and further development;

the problems of creating and using an organizational and methodological process for development and implementation of comprehensive systems;

the particularities of creating comprehensive quality control systems at various energy facilities and at different levels of management;

the experience of the foremost energy associations and enterprises in the sector in creating comprehensive systems;

the results of experimental implementation of a series of national standards for managing an industrial association (industrial enterprise) and their use for developing and improving comprehensive quality control systems;

the problems of coordinating creation and development of comprehensive systems on the departmental and inter-departmental levels;

the significance of up-grading the quality of energy production and of the effective use of resources for accelerating scientific and technological progress in the sector, et al.

V.V. Belysev, collegium member and head of the Technological Administration of the UkSSR Minenergo, noted in his speech at the seminar that in the program for accelerating the country's economic and social development, adopted at the 27th CPSU Congress, an important role has been assigned to improving the quality of production in every way possible and to the effective use of resources. In "Main Trends of Economic and Social Development of the USSR for 1986-1990 and for the Period up the Year 2000", one of the challenges of accelerating scientific and technological progress and of developing science is that of finalizing implementation of comprehensive quality control systems. For the power engineering industry this challenge is particularly crucial due to the great importance of the quality and reliability of energy supplies to all sectors of the national economy and spheres of life in our society. The presenter noted that associations and enterprises in the sector as a whole have met the challenges established for the 11th Five-Year Plan for implementing comprehensive systems. However, there were definite weaknesses in the work done to create and run them effectively. The major one was the lack of attention to matters of improving the quality of energy production on the part of some managers. In those establishments where this has become a problem, formalism, superficiality and a lack of direction in the interpretation and solution of the problems of quality improvement are noted. Seminar speakers also focused the attention of managers and specialists of associations and enterprises in the sector on the need for their personal active and interested participation in organizing and implementing work on quality improvement and on creation of comprehensive systems. In so doing, implementation of comprehensive measures influencing quality improvement and efficiency must be the basis of technological policy and the practical work of creating KS, UKP and EIR. Moreover, these measures must not be taken in isolation but must be an organic component part in the comprehensive measures of production development.

S.V. Yatskevich, deputy chief of the Technological Administration of the UkSSR Minenergo, provided in his report a wide-ranging analysis of the results of work done in the sector to create comprehensive systems during the

11th Five-Year Plan, and defined the challenges of the associations and enterprises in finalizing, perfecting and developing systems in the 12th Five-Year Plan. It was noted that work was actively ongoing in the PEDs Dneproenergo, Vinnitsaenergo, Lvovenergo, Krymenergo and Kharkovenergo. Work is near completion in the Donbassenergo PEO. In the Odessaenergo PEO and especially the Kievenenergo PEO more attention must be focused on creating comprehensive systems.

All together in the associations and enterprises of the sector there are approximately 530 enterprise standards in place, and measures for meeting the requirements under these standards have been carried out. A definite social, organizational and economic effect has been obtained from implementation of comprehensive systems. The annual economic effect of implementing KS, UKP, and EIR was R3,309,800. All comprehensive systems in place are registered in the territorial offices of Gosstandart. However, in favorably assessing the results of the work done, it is not possible to say that all problems concerning the fundamental improvement of quality and the effective use of resources have already been solved. It is necessary to look for further constructive proposals to improve the efficiency of comprehensive systems in the 12th Five-Year Plan.

The real challenges of upgrading the quality of production and the effective use of resources in light of the decisions of the 27th CPSU Congress and the 27th UkDP Congress were elucidated in the report of L.V. Zhurba, head of the Ukrainian Republic Section of the Administration of Gosstandart.

P.I. Suprun, vice-rector of the Institute for Management of the National Economy, reflected in his speech the key questions of the connection between the creation of KS, UKP, and EIR and acceleration of scientific and technological progress in the sector. He also gave an in-depth analysis of the main problems in the organizational and methodological process of developing and implementing comprehensive systems. The question of methodology and organization in developing KS, UKP and EIR were discussed in the reports of many speakers at the seminar (V.N. Korgun, A.I. Zagyanskiy, A.Ya. Spasibukhov, S.B. Denisyuk, G.V. Godik et al). Of interest was a proposal, supported by seminar participants, on organizing a sectoral office of quality control.

The speakers noted the need for a significant reduction in the number of enterprise standards being developed and the need for focusing these standards on regulating processes with a direct bearing on supplying quality electrical and thermal energy, energy repair work, savings and effective use of labor, fuel and other material resources.

Sharing of experiences in the creation of comprehensive quality control systems in associations and enterprises occupied a large portion of the work of the seminar. Those presenting reports and speeches (Ye.A. Vigovskiy, S.I. Shut, V.D. Gorbunov, A.B. Kostoglodov, N.V. Yarmusevich et al) spoke of the particularities of developing and organizing the functioning of systems in the PED apparatus, at electrical power stations, network and energy repair enterprises. Seminar participants noted that the experiment of implementing

comprehensive systems demonstrates that there are wide-ranging opportunities for actively influencing various energy repair work quality indicators in enterprises and energy systems. Implementing comprehensive systems has made a definite contribution towards improving the indicators of industrial and economic activity. For example, according to data presented in the report of the Deputy Director General of the Vinnitsaenergo PED, assigned voltage levels have been maintained at a more stable level, load charts have begun to reflect stricter requirements to maintain these levels, power outages to consumers have declined by 60 percent, and other indicators have improved as well in the association in the years since creation of a comprehensive system.

It was noted at the seminar that 1986 marks the beginning of a new period of creation and perfection of KS, UKP, and EIR. The work will be done with all enterprises and organizations in the sector, as provided for by measures of the UkSSR Council of Ministers in fulfilling the decisions of the 27th CPSU Congress and the 27th UkCP Congress. The challenge shall be the unconditional fulfillment of assigned tasks while substantially increasing the organizational and technological level of the KS, UKP, and EIR and their efficiency.

The main provisions for a technological policy for creation, improvement and development of comprehensive systems in the 12th Five-Year Plan were drafted into the recommendations adopted at the seminar, ways of eliminating the weaknesses of the preceding period were indicated, guidelines were given for the composition, content and methodology of systems with reference to experience accumulated, as well as to recommendations of the head organization, to documents from Gosstandart and to instructions from the UkSSR Minenergo.

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CSO: 1822/022

ELECTRIC POWER GENERATION

GES CONSTRUCTION DEFENDED

Moscow EKONOMICHESKAYA GAZETA in Russian No 33, Aug 86 p 17

[Article by G. Tikhonov, candidate of economic sciences, under the rubric "Problems and Opinions": "A Word in Defense of GES"; capitalized passages printed in boldface]

[Text] In recent years there has been a clear trend to cut back the pace of developing the country's hydroelectric resources and the share of GES in the total energy balance. It was noted in the speeches of several delegates at the 27th Party Congress that USSR Minenergo [Ministry of Power and Electrification] had reduced its attention to the startup and pace of hydroelectric construction.

Is this attitude to hydroelectric power justified? I think not.

WHAT WE MUST CONSIDER

According to the figures of scientists, the country's hydroelectric potential amounts to 1,100 - 1,600 billion kWh. In other words, GES are capable of meeting about 80 percent of the country's current needs for electric power.

In fact, only about one-fifth of the existing potential has been utilized. Let us compare that to the data for other countries of the world.

The United States has put into operation 45 percent of the hydroelectric potential at its disposal, Canada 42 percent, Japan 58 percent, and Spain and Norway 65 percent. In Sweden more than 90 percent of the total needs for electric power are met by power produced by GES. These figures refute the thesis that has recently had currency with us that GES' share of the total balance of power capacity is limited to about 25-30 percent. Under the conditions in the USSR their share could be considerably more than half. THE STEADY OPERATION OF CENTRAL SIBERIA'S UNITED POWER SYSTEM, WHERE THE GES SHARE AMOUNTS TO 50 PERCENT AND PRODUCES A CONSIDERABLE ECONOMIC EFFECT, PROVIDES GRAPHIC SUPPORT FOR THIS.

Under present-day conditions the profit received by the state from operating GES amounts to more than 3 billion rubles annually. Let me say that they produce slightly less than 15 percent of the electric power generated in the

country. But only one-fifth of the profits obtained -- about 600 million rubles -- is invested in expanding the most profitable component of the electric power industry, that is, in constructing new GES.

Why has the pace of building GES declined from year to year?

The advocates of this idea adduce as an argument the allegedly high capital intensiveness of hydroelectric construction. But let us consider, not just the funds directly needed to build a power plant, but also everything needed to ensure its normal operation. A GES's raw material is the unceasing river current, which nature herself continually renews.

It is another matter with thermal power plants, which require daily shipments of fuel, which, as you know, is growing ever more expensive, and is not renewable. Then we add to the currently accepted unit cost per kWh at a TES the costs of developing the fuel base (extraction of oil, gas, and coal). It turns out that the costs incurred for constructing TES and GES are approximately the same.

Used as another argument against building GES in the European part of the country, especially on the Volga and the Dnepr are ideas of an ecological nature -- the flooding of territory in the most densely populated area, thus losing valuable land and changing the climate. And what about this?

Current evaluation of the ecological impact of GES and of their overall national economic importance supports the practical desirability of building the GES of the Volga and Dnepr cascades. Moreover, the accelerated completion of construction of the Cheboksarskaya GES, for example, made it necessary to develop navigation for large-capacity vessels the whole length of the Volga.

The reservoirs formed by GES in the European part of the country not only serve as a water supply for cities and industrial areas, but also provide reliable assurance for crops in years of drought.

Today GES are generally built in remote unpopulated areas to minimize loss to the national economy. An example is the Nurekskaya GES, where all costs connected with the flooding of land, amounted to less than one percent of the total cost of the hydrosystem.

As for Siberian GES, it is inevitable that forest areas will be in the zone to be flooded. I believe that it depends on a proprietary approach whether this fact becomes a loss or a gain. Presently, USSR Minlesbumprom [Ministry of the Timber, Pulp and Paper, and Wood Processing Industry] intensively exploits the perimeter of the flooding zone. The thinking is: there is no point in felling timber where USSR Minenergo will be paying the costs. Then the shock work begins and deadlines bear down. Thousands of cubic meters of timber are left beneath the water of an artificial sea with naked shores.

It makes more sense from the standpoint of the national economy to organize the industrial exploitation of timber first of all on land slated for priority (first-stage) flooding.

Unfortunately, things are still done the other way around. For example, in the zone of the future reservoir of the Sredne-Yeniseyskaya GES, timber operations are not yet in progress, although Gidroproyekt [All-Union Planning, Surveying, and Scientific Research Institute] has included in its estimate about one billion rubles from tree felling in this area to offset the costs of building this GES. USSR Gosplan should more closely monitor the correlation between the GES construction plans of the USSR Ministry of Power and Electrification and the plans for tree felling and timber production of USSR Minlesbumprom.

The construction of GES in our country and the creation of reservoirs have taken a total of no more than 1 percent of the land involved in the construction of all industrial facilities.

It should be noted that the cost of generating electric power averages 0.15 kopecks per kWh. At the largest GES, Bratskaya and Krasnoyarskaya, production cost is lower still -- 0.05 and 0.06 kopecks per kWh, and at the Nurekskaya GES it is 0.08 kopecks per kWh, while at TES and AES it costs a whole kopeck.

Also favoring an increased pace of hydroelectric power construction are such technical-economic GES indicators as lower metal consumption and personnel requirements. Relative metal consumption per installed kW for GES is nearly half that for the construction of TES. The number of personnel to service it is lower by a whole order of magnitude.

GES equipment and plant are simpler, more reliable, and longer lasting. They are virtually free from obsolescence. Costs for routine and capital repairs are lower by a factor of seven or eight than for TES operation.

The profitability of GES, calculated as the ratio of the amount of profit to the cost of fixed capital utilized, is nearly double that for thermal power plants. GES have a broad range of maneuver, virtually equivalent to their rated capacity, and very rapid action. This makes it possible to utilize them to cover a shifting zone of daily load curves, and also to regulate the output and frequency of the power system.

Thus, we must consider not only the one-time costs of building power facilities, but also the funds for their operation.

WHY IT TAKES SO LONG TO BUILD GES

UNDERVALUATION OF THE NATIONAL ECONOMIC EFFECT OF DEVELOPING HYDROELECTRIC RESOURCES AND LACK OF THE FINANCING AND RESOURCES REQUIRED FOR TIMELY CONSTRUCTION STARTS ARE AMONG THE MAIN REASONS FOR THE INCREASE IN THE TIME NEEDED TO BUILD GES. The construction time for major GES has been stretched out to 15-18 years and is at least double the time based on engineering requirements.

The experience of building the major GES on the Volga and the Angara in the 1950s, and the recent examples of the Kurpayskaya, Tashkumyrskaya, and

Baypazinskaya GES in Central Asia have demonstrated that with the proper provision of resources GES can be built in an average of five or six years, and that still larger ones can be built within 10 years.

In conformity with the tasks of the Power Program, and taking account of the technical-economic indicators of GES, USSR Minenergo specialists have worked out proposals for the construction of GES for 1986-1990 and in the period up to the year 2000. What is their main content? It is estimated that IN 15 YEARS -- UP TO THE YEAR 2000 -- WE CAN PLACE CAPACITY IN OPERATION AT GES EQUAL TO THAT PLACED IN ALL THE YEARS OF SOVIET POWER. THE OUTPUT AT GES WILL ALSO NEARLY DOUBLE.

In the Central Caucasus alone the economical hydroelectric potential not yet tapped is equivalent to a capacity of about 3 million kW. It has been proposed to double the capacity of GES in Georgia and Azerbaijan.

Specialists believe that in the Central Asian republics the construction of GES should be the main avenue for the development of the power base. The enormous reserves of hydroelectric power can almost wholly supply this region's needs for electric power for the next 30-40 years.

The most suitable river for exploitation in Central Asia is the Vakhsh, the current of which, even after the construction of the Rogunskaya GES, can double the output of electric power by constructing the remaining GES of the cascade. It is advisable to accelerate construction of the Narynskiy Cascade GES, where only 30 percent of the potential is now being exploited. The next stage is to shift to the construction of GES on the Pyandzh River. There the potential is double that of the Vakhsh.

Unfortunately, the development of hydroelectric resources in Central Asia is proceeding at a slow pace. Only 20 percent of the economical hydroelectric potential is in operation. That is why construction has had to be stepped up of the coal-fired Novo-Angrenskaya GRES and construction started of the gas-fired Talimardzhanskaya GRES. Meanwhile, Uzbekistan has much potential for the development of hydroelectric power.

The Main Directions for the Economic and Social Development of the USSR for 1986-1990 provide for placing large-scale hydroelectric capacity into operation, especially in regions of Siberia and the Far East.

Figures show that it is now more advantageous to build GES on the Yenisey than KATEK thermal power plants. Considering the fuel component, relative investment per installed kilowatt at KATEK is nearly double that on the Yenisey, and the cost of generating a kilowatt hour on the Yenisey is cheaper by a factor of four or five.

A CONCEPT NOT A DOGMA

Full development of the Nizhnevartovskaya and the second Surgutskaya GRES and the construction of subsequent GRES will only meet the demand for electric power in their own regions. The transmission of electric power from these

GRES to other regions is not economically feasible. However, the estimated annual output of just the Turkhanskaya GES on the Yenisey (46 billion kWh) meets the demands of all Western Siberia. Then why not speed up construction of the GES on the Yenisey, which are so profitable, such as the Turkhanskaya, the Sredne-Yeniseyskaya, the Osinovskaya, the Igarkskaya, and others?

The distance from the Turkhanskaya GES to Nizhnevartovsk is about 750 km, and from the Kureyskaya GES to Urengoy it is about 500 km. Running 500 and 1,150 kW LEP [electric power transmission lines] could logically solve the problem of reliably and efficiently supplying these oil- and gas-producing regions with electric power.

IT APPEARS APPROPRIATE TO REVIEW THE CONCEPT OF BUILDING MAJOR GRES IN WESTERN SIBERIA AS COMPARED WITH THE ALTERNATIVE OF TRANSMITTING ELECTRIC POWER TO THIS REGION FROM THE GES OF THE YENISEY CASCADE. SO FAR USSR MINENERGO HAS PLANNED FOR THE 12TH FIVE-YEAR PLAN TO BEGIN CONSTRUCTION OF THE TURKHANSKAYA GES AS A CONSTRUCTION STARTUP PROJECT. FOR THIS, FOR THE SREDNE-YENISEYSKAYA GES, AND FOR SUBSEQUENT GES WE SHOULD RAPIDLY SET UP AN INDUSTRIAL BASE IN THE CITY OF LESOSIBIRSK TO SERVE AS THE BASE FOR THE ENTIRE CASCADE.

There are other circumstances that force us to turn to the need to begin hydroelectric construction in Siberia. Problems of an ecological nature and organizational problems -- setting up major manpower collectives at KATEK -- may become serious obstacles to achieving the originally-intended scale of development of this complex.

By current thinking, the environmental impact of the emissions from the TES at Ekibastuz was also underestimated during design. The cost of constructing scrubbing facilities in that region would equal the cost of building the power plants themselves.

Siberia's enormous untapped hydroelectric resources are a genuine source of power supply for the new regions of industrial development that are growing in the wake of laying BAM [Baykal-Amur Mainline]: the Telmamskaya, Mokskaya, Shilkinskaya, Vilyuskaya, Seledzhinskaya, Bureyskaya, and Nizhne-Bureyskaya. GES can become the base for the development of industry and for city building in these areas.

A look at history shows that, as a rule, the creation of major industrial complexes began with the construction of GES.

BE BOLD IN ADOPTING NEW THINGS

Under contemporary conditions the methods of building many GES seem antiquated.

This problem is wholly soluble. We must be bolder in employing new technology, and introducing into a complex more efficient design and layout solutions. So far these occur without coordination: one here and another there.

Accelerating the shift to building earthen dams with cyclic-flow-line technology promises to yield a great effect. This technology will be worked out in

constructing the Rogunskaya GES. It can then be applied to the construction of the Pskemskaya and other GES.

After the experience at Inguri in building the Khudoni GES in Georgia, there can be no doubts about the advantages of the the continuous conveyor methods of transporting and pouring concrete.

The extensive use of low-cement mixes and especially of dry concrete mixes has been approved for the construction of the Tashkumyrskaya GES in 1986, but this technology is also needed for the Katunskaya, Bureyskaya, and other hydroelectric power plants.

Increasing specialization and improving the managerial structure of hydroelectric construction and concentrating in a single association matters of planning, designing, and adopting innovations will make it possible to direct matters into the proper channel, better coordinate work on the decisive avenues of accelerating scientific and technical progress, and achieve the maximum national economic effect for every ruble invested.

It remains to add that well-founded proposals prepared by leading specialists have been awaiting their fate for two years and have not yet been actually put into practice.

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CSO: 1822/035

ELECTRIC POWER GENERATION

TURNKEY AT BAYPAZINSKAYA GES RAISES PAY PROBLEMS

Moscow IZVESTIYA in Russian 12 Sep 86 p 2

[Article by L. Makhkamov, Tajik SSR, under the rubric "Report on Self-Financing": "Turnkey Can Be Made to Work"]

[Text] In late June the fourth and last generator unit of the Baypazinskaya GES on the Vakhsh joined the existing ones. Like all the previous ones, it was put into operation ahead of schedule, and this time it was six months ahead of schedule. This was the first case of turnkey construction of a hydroelectric power plant.

This sixth-in-number plant of the Vakhsh cascade was built by the experienced collective that built the Nurekskaya GES. Nurekgesstroy switched to the new installation before, so to speak, the victory at Nurek had cooled off. They could be proud that all nine of the 300 kW generator units of the Nurekskaya GES went into operation ahead of schedule, that the earthen dam in the Pulisanginsk Canyon was raised to 300 meters -- the highest in the world, and that the very extensive underground complex is in operation. But the chief pride of the Nurek workers was, of course, the "Workers' Race," a new type of cooperation among associated workers, which was born on the remarkable Tajik construction project.

But the construction workers were not just counting on their enormous experience and prestige as they arrived at their new job. A good mood in the collective had been engendered by the award to Nurekgesstroy, as the first among hydraulic engineers, to test the advanced turnkey method of construction.

Now, six years later, this method has been proven and has yielded good results at other hydroelectric construction projects in the country. However, it appears that the attitude of the Nurekgesstroy workers -- the first to try it out -- is complicated.

S. Lashchenov, chief engineer of the Tadzhikgidroenergostroy General Contractor Trust, says:

"Unfortunately, the terms of the experiment were poorly related to its tasks. And adjustments were made either grudgingly or not at all. What was the issue? Namely, that we construction workers did not psychologically readjust

ourselves: we had gotten used to having as much funding as possible, but with turnkey construction the same amount of work can be performed at smaller cost. Is this logical? Of course. The trouble was that our plan indicators continued to decline in monetary terms, because that ill-fated dike, "funds utilized," then had a higher value than the facilities turned over. The result was that the more economically a collective worked, the less was allotted to its wage fund.

A. Antipov, a section chief, says:

"In my opinion a substantial problem has not been solved -- material incentive for the workers. For a variety of reasons, not all of them look forward to the completion of construction, when bonuses are finally awarded. Because under turnkey operation they do not get all they should!"

In our micro-interviews there were a lot of questions that the Baypazinskiy experiment raised but unfortunately did not solve. What happened? On the one hand, the targets assigned to them were reached: construction was speeded up, millions of rubles were saved, and the quality of the work is beyond question. But on the other hand, the workers have cause for dissatisfaction. Let us say straight out that the collective did more than called for by the terms of turnkey construction, and it made a step forward in developing a contractor's independence and responsibility. But not everyone was ready to share their pioneering risks. Many of the hydraulic engineers' proposals for ways of effective operation piled up unanswered at Gosplan, Minfin [Ministry of Finance], Gosstroy, and USSR Srobybank [Bank for Financing Capital Investments].

Minenergo, under whose auspices the experiment was being conducted, was likewise not firm enough, and therefore there was been more talk to date about the potential of the turnkey method in construction than about its effectiveness. What potential is meant?

It has already been mentioned that the experiment was not tied to evaluation of the labor of all the subunits taking part in the construction. Some organizations, therefore, wanted above all to get a plan on the low side, and to work without concern for fulfilling the experimental tasks. As a result they managed to look good, while the real business proceeded slowly. This was the case, for example, prior to startup of the first generator unit, when much depended on Nurekgesstroy's main subcontractor, the Tajik Gidrospetsstroy Administration. Despite the threatened breakdown, the tunnel builders still fulfilled their annual plan by 118 percent. And Nurekgesstroy's own subunits installed the unit, but fulfilled their plan by only 97 percent. It is quite clear from this comparison that the basic criterion for evaluating the activities of any construction-installation organization and for its incentive must be simply the on-time fulfillment of an approved schedule that will ensure the startup of the power-generating facilities. Without that, the experiment, as they say, will not fly.

It will be more full-blooded if it encompasses all organizations on which the normal progress of construction is to some degree dependent: design,

scientific-research, transportation, and the plants that supply equipment, components, and materials. Although their effect on construction is great, they are not provided with any material incentive for completion of a construction project. As a result, certain plants have adopted their own ways of compensating themselves for expenses incurred on behalf of the experimental construction project. They sell their products to Nurekgesstroy at higher prices than provided for in the estimate. Naturally, this puts the construction project in a difficult financial position.

It would only be fair, the construction workers believe, to eliminate this contradiction, too, and they are prepared to share the incentive fund and to compensate each organization in proportion to its specific contribution to speeding up construction and reducing costs. As proof of the fairness of this approach they offer a case, even though it is unique, which provides substantial proof of the construction workers' fairness. To deliver the largest and heaviest turbine components to the plant, the design provided for the construction of a bridge over the Vakhsh and major road rebuilding. It was clear that this would take more than a year and prolong construction work. But startup of the first generator unit was wanted sooner. And a way was found: to drive a vehicle tunnel through the mountain right to the construction site. But this raised a new problem: to get the generator through the tunnel, its size would have to be pared down. The solution of this problem was outside the jurisdiction of the construction workers. They turned to the equipment manufacturers. These were old friends in the Workers' Race from the Sverdlovsk Uralelektrotyazhmash Association, and they met and agreed to change the generator design. This made it possible to install the turbine with the aid of 160-ton series cranes, rather than ordering special cranes twice the size. This change in turn made it possible to reduce the height of the plant's machine room and to advance the startup of the generator unit by more than a year. The total economic effect was more than 700,000 rubles. Whom should we thank? The machine builders! But current procedures do not give them a single ruble of credit. The question arises: how can we take advantage of this selfless response from associated workers? How can we exploit their unvarnished enthusiasm? The construction workers themselves have asked these questions, and have put them to others. But neither emotion nor serious economic computations have had any effect on the silent inaccessibility of higher authorities. Silence reigns at Gosplan, Minfin, Goskomtrud [State Committee for Labor and Social Problems], and USSR Stroybank. Meanwhile, the construction workers, instead of consolidating and developing what they have achieved, are in confusion over the contradictions between the new form of management and the established and frequently outmoded legal norms.

And new power plants are in the offing: Sangtudinskaya and Shurobskaya on the Vakhsh, and three Pamir plants. The new experience obtained in the experiment would be useful there, too. It would be a pity if, along with the pluses it produced, the minuses also migrate to the new construction jobs. The method is promising, but it has not been completely polished, and is more or less stalled between optimism and disbelief. There is much, of course, that cannot be brought back. But for the sake of the work it is still not too late to consider the proposals to expand constructions workers' rights when deciding financial matters and questions of incentive by stage of construction, on

interrelations among associated workers, and on measures to maintain a stable collective. And finally, it is important to correlate the principles of planning and evaluating the activities of construction organizations. Otherwise, the experience of the Baypazinskiy workers will be only a matter of local importance, and each time construction workers will have to fit their turnkey personnel to the same problem -- how to make turnkey work.

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CSO: 1822/035

ELECTRIC POWER GENERATION

KURGAN TETs REPAIR LAGS

Moscow IZVESTIYA in Russian 24 Oct 86 p 2

[Article by G. Shcherbina, IZVESTIYA correspondent, under the rubric "For Economical Energy": "Winter is at the Gate... Why Repair of the Kurgan TETs Has Lagged"]

[Text] By the calendar it is still autumn in the Trans-Ural, but impending winter is already now and then displaying its sly habit: suddenly snow arrives from the not-so-far far-off, then it breathes with a piercing cold wind, then tests its strength with its first frosts. For the inhabitants of Kurgan this is enough to remind them of the severe winter of 1984, when the heart of the city's power -- the thermoelectric power plant -- was almost completely frozen. The heating system in buildings froze, and the productive activities of many enterprises was paralyzed. The city got out of the state of shock only at the price of extraordinary measures and great effort. But the consequences were such that even the following winter was uneasy and difficult.

Analysis of the reasons for the critical situation has shown that the main ones are an on-going shortage of spare parts, the lack of a qualified mobile repair service at the TETs, a large personnel turnover, and the depreciation and obsolescence of many generator units that are not in condition to painlessly "digest" high-ash Ekibastuz coal.

In March of this year the Kurgan party obkom and oblispolkom and the USSR Ministry of Power and Electrification worked out and approved a joint plan to establish order in the city's electric power supply. The Minister of Power issued the appropriate order. Both documents are serious and substantial. About four million additional rubles were allotted to the planned amortization allocation for capital repairs, and limits were established for contractor operations. Kurgan enterprises were given the task of manufacturing spare parts, of assigning qualified workers to repair work at the TETs, etc.

Now the summer has passed. What are the results? M. Vasilyev, who was the director of the TETs in the ill-starred winter of 1984 and now heads the engineer service there, speaks with enviable optimism of the amount of work performed and of the great assistance which has been and still is being provided by the power engineers of Chelyabinsk, Troitsk, Argayash, Yuzhnouralsk, Perm,

Kirov, and, finally of course, by those in Kurgan. But on hearing the direct question: will the inhabitants of the oblast center have warm apartments this winter? -- my interviewee hesitated.

"Let me say," he replied diplomatically, "that it should be better than last winter. But how much better, I can't say.."

The TETs director, G. Avraamov, spoke in the same vein. Although he has not been long in his new role, he already has the old habit of eagerly "reporting" successes and keeping quiet about lapses. And this, we have long known, leads to no good. Indeed, how can there be anything good, when the repair work at nearly all the plant's facilities is much off schedule, and for the boilers the lag is a whole month. Of eight boilers slated for repair, only 17 had been repaired as of 17 October. The repair of two other boilers is under way and was presumably to be completed by 1 November. But what is the status at these other two boilers?

"The No. 1 and No. 5 Boilers have not been repaired at all," the director acknowledged. "We simply did not have time for them."

"And when will you start on them?"

"We can't do it now. And if we now try to fit them in for repair, that will just make it worse. But this problem has been coordinated with the ministry.

An interesting situation has developed: on the one hand undertakings are signed, and on the other it turns out that one can blithely reverse what was approved for execution.

This seems to be a case where in "complying" with these requests, they wish to deflect any criticism from themselves. And the ministry has accumulated plenty of such criticisms. For example, the Sibenergomash plant in Barnaul was given the assignment of manufacturing for the Kurgan TETs shields and cold plates for steam superheaters, and water misers. But, since this was a supplemental assignment, it took a lot of time for the Barnaul people to put it in their plan. In fact, the equipment was manufactured and delivered to the Trans-Ural very late. Furthermore, the makers dispatched the spare parts, for example, and the cold plates themselves, piecemeal. The TETs received these uncoordinated and bent pipes and reshipped them for welding to the city of Yuzhnouralsk in Chelyabinsk Oblast, losing time and incurring additional unforeseen costs.

And should we not fault Minenergo [Ministry of Power and Electrification] because, for the specious purpose of improving the structure of its on-site systems, it shut down the Kurgan TETs repair shop? Its functions were transferred to the pertinent centralized service of the rayon Chelyabenergo Administration, which is located 300 km from Kurgan. Brigades are sent out from there on occasion, and then only helter-skelter. This also largely explains the situation that has arisen at the TETs.

As soon as they realized that "we don't go there," they reestablished the

repair shop. But how hard it is to set something up again that was so easy to tear down! It is no wonder that even a whole year later they have not been able to recruit personnel: the TETs has neither housing nor pre-school facilities, and no material incentive funds, especially for engineer and technical personnel. The day of my visit, on the desk of Director G. Avramov there were two dozen letters from qualified specialists -- letters of resignation.

They hopefully explained to me at Kurgan that things will get better after the TETs converts to gas. Maybe it will turn out like that, but for that to happen construction will have to be stepped up of a gas pipeline 120 km long. Unfortunately, work on it is going badly. Finished so far is a 10-km sector, for most of which there is no pipe. And the TETS construction administration, which has to lay 22 km of feeder lines, is in no hurry to complete its part of the work.

The ispolkoms of the municipal and oblast Councils of People's Deputies deserve serious censure for the situation that has developed in the heating supply system. It is laudable, of course, that they are assisting the TETs with manpower, and by enlisting the city's enterprises to manufacture nearly 200 types of designated spare parts. On the other hand, however, there are still many holes and fissures in the city from which steam escapes day and night. This means that the heating lines have not been properly laid, thus weakening the TETs and heating the great outdoors. One reason for this waste of heat is that there are 48 heat-supply points, while various other services have 59, many of which are actually in reserve. Furthermore, the laying of the new lines is proceeding chaotically. The Kurgangradnastroy Institute is acting for various customers and is connecting facilities to utility lines without regard for future construction. This is why there is more excavation work for every new construction site than for repair work. Isn't it the job of the local councils to establish order here, and to put these facilities under one boss -- the municipal heating lines?

Winter is knocking at the door. Its knock is persistent and alarming. It is a warning of much to come.

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CSO: 1822/035

ELECTRIC POWER GENERATION

ZAGORSKAYA GAES UNDER CONSTRUCTION 13 YEARS

Moscow IZVESTIYA in Russian 28 Oct 86 p 2

[Article by S. Romanov, Moscow Oblast: "Minus 50 Million. Why the Zagorskaya Pumped-Storage Electric Power Plant Has Been Under Construction for 13 Years"]

[Text] At various conferences and planning meetings V. Plotnikov, chief of the construction administration of the Zagorskaya Pumped-Storage Electric Power Plant has assured USSR Minenergo [Ministry of Electric Power and Electrification] (which is building the plant), that its startup date was realistic and that the first two generator units would certainly be put into operation in August of this year. Perhaps it could have been, but...

A serious accident occurred on a July morning. The right-hand 20-meter wall of the water intake -- the result of many months of work by the plant's hydraulic engineers -- gave way. Fortunately, none of the workers were down inside it, and there were no casualties.

More than one commission has visited the site to investigate the causes of the accident. It turned out that there was a long crack in the left wall of the water intake. Work on that wall was temporarily suspended. Specialists concluded that the Magnitogorsk Metallurgical Combine had sent the construction workers poor-quality reinforcing rods. Others were inclined to believe that the plants' construction workers were at fault for failing to test the metal components prior to putting in the wall.

In any event, there was lack of control on both sides. Members of the plant's OTK [department of technical control], in their end-of-the-month haste, allowed a defective product out of their plant's gates, and the construction workers, who were very short of time and not keeping even to the extended deadline for the startup of the facility, started their work in the hope it would hold. It did not hold...

Since the first peg was driven for this new type of power plant on the Kunya River, near Zagorsk, no more and no less than 13 years have gone by. At the time the power engineers placed great hopes on the future plant, since the power system of the central part of the country, which encompasses the enormous territory from the boundaries of Arkhangelsk Oblast and the Komi ASSR in the north to the boundaries of Kharkov and Rostov oblasts in the south, was

suffering from irregular daily power demands. These were due to growth and expansion of industrial and agricultural enterprises, municipal and everyday facilities, and transport operations. In a word, the Zagorskaya GAES, which was to be built as the latest model, was to eliminate in short order the electric power shortage at peak hours, and was to be utilized later on as reserve capacity for the Central System.

The GAES's speed of startup and ability to reach maximum capacity in just one minute, its flexibility and reliability under a broad range of loads -- all these operating features give the GAES an enormous advantage over other types of power plants.

The designers of the Zagorskaya GAES -- the employees of the All-Union Design and Scientific Research Institute imeni S. Ya. Zhuk -- calculated that by 1980 the plant would be supplying electric power to the Central System, and that the 217 million rubles invested in its construction would be repaid in two years.

But construction of the GAES was not completed, either in 1980 or in the years following. Either there was a shortage of manpower or equipment, or errors were found in the design and estimation documents, or because of miscalculations it became necessary to extend the plant's startup deadline.

But the main thing was that mismanagement reigned at the construction site, frequently causing defective work.

Two years ago, when an individual water-supply conduit was being assembled, one of its rings, 7.5 m in diameter, when being lowered into place, broke loose from its dolly and rolled off. As a result, several other earlier-installed rings worth tens of thousands of rubles were smashed.

This year both the designers and construction workers discovered that the system of concrete flanges to reinforce the slope along the line of the water intake had been improperly designed and installed: for several years in a row the rains had washed out the sand and moraine from underneath the water intake. A new design was prepared, but now it will take 70,000 rubles to rebuild each section of the flanges. For an enormous construction project this figure might look like a drop in the bucket, unless you realize that there are 18 of these sections. That means we are now talking about a loss of a million rubles, and by a very rough calculation the construction overrun is now more than 50 million rubles!

Together with B. Polovingikov, the chairman of the people's control group of the Zagorskaya GAES management, I attempted to calculate what additional funds will have to be spent to correct even part of the construction errors.

Prior to construction of the plant neither the geodesists nor the designers took into account that the slope where its facilities were to be sited might be subject to landslide. The result was that the clay beds slid forty meters down the slope. The hydraulic engineers were now faced with the problem of erecting additional structures to retain the soil.

During the concreting of the slopes in the moraine field, where a brigade of the student construction unit of the Moscow Power Institute was working, nearly one-third of the area was concreted without a layer of bitumates. Nobody had supervised this. Of course, when it was discovered, the chief of the administration of foundation work, N. Bugayets, gave orders to lay bitumates. Once more, there were additional outlays of funds.

Let's sum up what has been said. The startup date of the Zagorskaya CAES has been put off time and again. And USSR Minenergo, which has been building the plant for 13 long years, is at fault for this. It must be held responsible for failure to meet the startup deadlines, for the mismanagement that has reigned at the construction site, and for the omissions and alterations that have cost the country not in kopecks but in millions of rubles.

All efforts must be applied so that the plant will be put into service as soon as possible. Because the industrial enterprises, kolzhozes, and sovkhoses of the Center are waiting for its power.

1/4/67

CSO: 1822/035

DOMESTIC ASSISTANCE EXPERIMENT FOR ELDERLY IMPLEMENTED

Moscow PRAVDA in Russian 5 Oct 86 p 3

[Article by T. Aleksandrova, PRAVDA special correspondent: "Variants of Care: Experimenting With Social Assistance in the Home"]

[Text] Tallim-Riga--It is an unusual name, "The Bureau of Home Services for Elderly Citizens Living Alone." The bureau originated in Riga, at the city department of social security. And although for now it lacks even a sign, already 250 persons are receiving assistance here.

The bureau's organizers have to overcome a host of difficulties as they seek answers to the questions that suddenly confront them. A start is a start, but the frame of mind one starts out with is always of some importance.

"The very idea of our work is appealing," says Dinara Kotlovets.

It was this idea that attracted her, a builder by profession, to the position of senior inspector for the bureau. The experience she acquired of working with people is particularly appropriate to her new position; for such service requires of the inspector an understanding of someone else's problems, as well as those that are familiar (the problems of the elderly, which one has yet to experience, are difficult and far from familiar), as well as the wisdom to select workers--"service executors," as they are called here, capable of adapting to their duties flexibly.

Who is, and how does one become, eligible for home care? Single persons of advanced years; invalids if they can no longer care for themselves; lone, childless married couples. Age, how one feels, and living conditions are taken into consideration. For this reason, in addition to an application saying "I request being placed in the care of...", a health certificate issued by the medical board is required, as well as a document attesting to an inspection of domestic conditions and a directive from the rayon department of social security. Volunteers from the councils of pensioners and welfare committees for regional housing operations assist in collecting and putting in order the documents. Thereafter, a helper will appear and take over the tasks of procuring products, medicines, magazines and books, as well as tidying up. Calling the doctor, paying for the apartment, ordering a delivery of fuel

and sending out the laundry are also duties taken over. If necessary, the helper may perform other services. There are no less than two visits a week to those being cared for. All of this is stipulated in an agreement between the bureau and the service executor. The pay is 80 rubles a month for four care recipients. One can care for either two or one, but then the salary is commensurately less.

Present-day difficulties with labor resources are well known, but many persons responded to the bureau's offer of employment carried in the newspapers. Blue-collar and office workers--both men and women--together with students, pensioners, and young mothers at home with small children.... Some were attracted by a flexible schedule and being able to plan their own time; others found the opportunity to work close to home. Of no small importance is the fact that the bureau does not require written permission to hold down two jobs at once--the agreement is not noted down in the work card. However, the motives were not specifically investigated, but one would like to think that the noble beginning of this new service has not yet played out its last role.

Brigita Alfredovna Kazanova, head of the Riga Gorispolkom Department of Social Security discussed the growing number of people in the city who have reached pension age, including, alas, many who are living alone. There are now 10,000 of them. Some of these continue to work; others although retired, are still socially active and, naturally, take care of themselves. According to a survey, however, there are 1,700 in the age group of the elderly who are in immediate need of social assistance. Moreover, these people cannot simply wait upon residential dormitories. On the one hand, they cannot all be accommodated at this time; on the other, it is psychologically important that the person be given a choice whether to move into a shared residence, undergoing a radical change of living, or to stay in family surroundings, receiving the necessary support.

PRAVDA at one time reported on the experience of Dnepropetrovsk and on the experiment in Estonia, which was based on the development of an institute of care counselling within the social security system. Letters of response to these published reports brought a fairly uniform reaction. "I read with interest....", "It was pleasing to learn....", alongside the reasonable questions "Why do some places have the, but we don't?" and "Isn't it time for these separate beginnings to be put into universal practice?"

When one undertakes service in an agency of social security, compassion is essential. The word is obsolete, but not the concept: a capacity to empathize, and out of this empathy to come without delay to someone's aid, at times overcoming a great many "it's not done" of the financial agencies. Nowadays it is no longer enough simply to sympathize with those living alone and sigh that there is no place to care for them. More can be required of local soviet ispolkoms and the agencies of social security. In May 1985 the CPSU Central Committee, the Council of Ministers and the All-Union Komsomol passed a resolution entitled "Priority Measures for Improving the Material Well-Being of Inadequately Provided-for Pensioners and Families and Improving the Care of Citizens Living Alone"; and in February of this year, in light of this requirement, the USSR State Committee on Labor and the All-Union Komsomol

Secretariat passed a resolution to carry out an all-union experiment in organizing social assistance at home for the elderly living alone.

The experience in Estonia constitutes the basis of the experiment. Sections are set up at residential dormitories for the elderly and for invalids. The dormitory homes provide for the material care and general supervision. Since the work of the sections is built on the principle of territorial division, they may be placed wherever convenient--in special locations or within the social security departments. The departments provide the new service with organizational assistance, determine the zones and regions of their activity, and control the work.

The section staff, in addition to its chief, has several social workers. Each is required to serve 8 to 12 persons, depending on the type of services involved, distances to overcome, public transport and convenience of route. The question arises: Why is the load so heavy here compared to that of the bureau in Riga? There, as you recall, the number of assistance recipients is four. Here there are from 8 to 12.

The difference lies in the very principle of service. The social security workers in Estonia that we had occasion to meet with empathized that the counselors are not sick-nurses or maids, the organizer of the elderly person's life, but rather psychologists and teachers. One care counselor was heard to say: "It is sometimes easier to scrub the floor yourself and to dust, than it is to awaken in a person the desire to see his own home tidier, to lie about less and move about a little more." Instead, as the Estonian experiment enthusiasts believe, instilling an interest in life and a capacity to care for one's self is of greater importance. Here, for instance, a counselor is not even obliged to clean up. She may simply put the one receiving assistance in touch with a domestic service, whereas the Riga "service executor" has more purely domestic duties.

Under the conditions of the all-union experiment, home care is free of charge. The bureau in Riga makes it available only to pensioners receiving less than 60 rubles. The rest have 10 percent deducted from the amount of their pension as stipulated in their application. However, at the request of the social security departments, the rayon ispolkoms of the soviets of people's deputies have the right to relieve pensioners of the obligation to pay taking into account of special circumstances. One need not have special knowledge of economics to see that bureau care costs the state a good deal more than care in a residential dormitory. But when care is concerned, we do not count kopecks.

The State Committee for Labor has placed its seal of approval on the Riga variant. I want to emphasize that it also did not spring up on barren ground. For three years the elderly living alone were served through a pensioner office of mutual assistance, paying recipients by agreement, through a state subsidy which came from the city budget and consisting of a single staff organization. All the rest of the work was up to the community. The guiding light of the entire project was Zinaida Ivanovna Fursova, head of the office and president of the city pensioners' council. A more appropriate person for the job is

difficult to imagine. Goodness, responsiveness and, what's more, understanding of the special difficulties of those who lack the strength to take care of themselves, their psychological makeup--the psychology of old age. After going through the war as a nurse, Zinaida Ivanovna was for many years director of a facility for special pensioners. Today the bureau is taking its first steps under her watchful gaze.

"Home care cannot by any means be entrusted to just anyone," in the opinion of Zinaida Ivanovna. "Of course, there must be a feeling of trust for a person who comes into your house. Experience shows it's best if the elderly themselves find the right candidate by reaching an agreement with one of their neighbors or a friend. Although neither a work book nor references are required of the worker by the contracting bureau, nevertheless it is necessary to scrutinize and come to know the applicant and there is much to be explained."

State aid is the most guaranteed and reliable aid, but it in no way takes the place of community activity--the participation of neighbors in the lives of those who are alone, as well as pensioner councils and veterans' councils affiliated with living areas, schools or vuzes. Virtually every city has its Timurovets teams, who buy the elderly necessities, bread and milk, and bring fuel for the stove. But not everything is within their power. Volunteer youth detachments are therefore also necessary. The Komsomols must be actively involved.

Care for the aged living alone and invalids demands many flexible variants. The experiment offers a broad range of possibilities to social security workers, and to social scientists who study these problems; there is much to learn, and much to ponder. The resolution calls for carrying out the experiment in all union republics (in not less than two or three areas). Within the RSFSR, it is to be carried out in Moscow and Leningrad, in Krasnodar Kray and Maritime Kray, in the Chechen-Ingush ASSR, and in Vologda and 8 other oblasts. Notwithstanding all that is positive, it remains to be said that there is a danger, lurking in any kind of experiment, that it may remain in swaddling clothes. Yet time will not wait. There are thousands of the elderly living alone in constant need of vital support that they are not receiving.

12889/12947
CSO: 1828/14

LABOR

REASONS TO RESTRUCTURE MANAGERS' SALARIES CITED

Moscow SOTSIALISTICHESKIY TRUD in Russian No 9, Sep 86 pp 63-69

[Article by P. Dubovoy, candidate of economic sciences: "Not on the Basis of Position, But on the Basis of Performance (How the Work of an Enterprise Director Should Be Remunerated)"]

[Text] People often say "there is no such thing as a bad collective, only a bad manager." This especially applies to the enterprise director. As a matter of fact, much does depend on the director as to the rise of production efficiency and utilization of the human potential. There had been many cases when a lagging enterprise or a kolkhoz operating at a loss became highly profitable economic entities with the arrival of a new manager. Moreover, and this is very important, the effect was achieved without additional capital investments and physical resources, merely by activating organizational, economic, and social factors (improving the organization of production, changing the style of management, making personnel more responsible for doing their jobs, and so on).

This strategy for increasing production efficiency meets the requirements of the present day. The need for maximum mobilization of all our reserves was discussed at the 27th CPSU Congress. And we have to begin by carrying out measures which do not require major outlays, but yield a speedy and appreciable benefit. We are referring to better utilization of the production potential that has been built, making work incentives more effective, reinforcing organization and discipline, and overcoming mismanagement. When a stewardly approach is taken to the use of internal potential, it offers a high return.

To a great extent the solving of these problems depends first of all on enterprise directors. Here is a vivid example. A system designated by the slogan "Progressive Ideas Applied To Production," whose purpose is to guide the initiative and creativity of the workers, ITR, and employees toward seeking out internal potential for greater production and toward solving the urgent economic and social problems facing the enterprise, was worked out and introduced at the initiative and under the guidance of V. Ugarov, director of the Frunze Instrumentmaking Plant imeni 50-Letiye KiSSR. The economic benefit from adoption of this system was 988,700 rubles in 1981, 1,109,800 in 1982, 1,536,300 in 1983, 1,541,100 in 1984, and 956,600 rubles in the first half of 1985. In 1984 alone 6,490 suggestions were submitted, and more than 5,000 were applied.

The growth rate of labor productivity in the current 5-year planning period is 18 percent higher than in the last one, and contractual obligations are being discharged fully.

A good and instructive example. But why have many people not taken it over as their own? The qualifications and abilities of enterprise managers to take up what is new and their financial motivation to improve production efficiency have great importance here.

Unfortunately, the present system for remuneration of managers does not motivate them to utilize all the potential available at enterprises. As a rule only that portion without which it is impossible to perform planning targets is activated.

It thus has turned out that the problem of organizing remuneration of the directors of industrial enterprises has for a long time not been given serious consideration, although experience indicates the need for a radical change in the present system. The number of managers of enterprises and organizations now exceeds 100,000. They have become one of the "common occupations" in the country.

What mechanism is used to remunerate their work? The income of the director is made up of his salary, of a bonus for the current results in economic activity, and several special-purpose bonuses. The salary is set in accordance with the scale adopted for the branch. It provides for differentiation of salaries as a function of two factors: the volume indicators of the enterprise's operation (his category) and the salary spread within each of the categories.

Let us take as an example enterprises in the machinebuilding and metal manufacturing industry, where the group of indicators used for structuring the salary scale of personnel, including directors, is the soundest of all the branches. The indicators are the following: the value of fixed industrial productive capital, the size of the labor force, and the type of production. In all, there are seven groups used for remuneration--from small enterprises to very large plants. The salary of the director of a plant in Group I (300-330 rubles per month) is twice as high as that of directors in Group VII (150-170 rubles).

In those branches where differences in enterprise size are small, provision is made for only two or three salary groups, and the size of the salary differs within a range of 20-25 percent. For instance, in the petroleum industry the chief of the administration of drilling operations has a salary of 250-270 rubles in Group III and 300-330 rubles in Group I (the salary spread between the highest and lowest groups is 22 percent). The purpose of the differentiation by categories is for managers' salaries to take into account differences in the complexity and responsibility of the work they have to do.

The salary spread for managers in the same enterprise category is designed to reflect in the salary differences in their qualifications and competence and their experience in the particular position. The difference in salaries based

on this criterion ranges from 5 to 12 percent. It obviously is quite inadequate to reflect these differences in the salary.

Our conclusion is this: The salaries of managers are in practice differentiated only with respect to the group of enterprises, and this is determined above all by their size. The director's salary does not depend on the performance of the collective.

The second part of the manager's income, both in size and significance, is the bonus for current economic performance. It is paid once a month or quarterly (if the basic production targets are met), and in the industrial sector its average size is approximately 25-30 percent of the base salary. One distinctive feature in the bonus system for managers is that the size of their bonus (represented in percentages of the base salary) must not exceed the average size of the bonus of ITR and employees on the management staff. Another fact that deserves attention is the very frequent--and at some enterprises systematic--reduction of bonuses for nonfulfillment of certain indicators on a long list of supplemental conditions and oversights in production. As a consequence the actual size of the manager's bonus sometimes proves to be less than that of ordinary engineering and technical personnel and employees.

The income of managerial personnel also includes miscellaneous payments from the material incentive fund (payment of the award on the basis of performance for the year, for fulfillment of particularly important production assignments, for the results in socialist competition, and so on). Bonuses paid from special sources have a substantial impact on the overall level of income of managerial personnel.

When one has examined the present system of basic remuneration (salaries) of managers, one cannot fail to reach the conclusion that the income of directors tends to be invariable. The establishment of personal salaries in individual cases does not solve the problem as a whole. As for the size of bonuses which managers receive for the results of economic activity, they differ slightly. Quite often the managers of enterprises which have large untapped potential, but have quite low planning targets receive a larger bonus than the managers of advanced enterprises with limited untapped potential, but nevertheless fulfilling plans effectively.

How is the director's salary to be made dependent not only on his position and salary group, but mainly on the results of the enterprise's performance. In solving this problem, it would seem, our point of departure should be that the manager of an enterprise occupies a special place. On the one hand he is a member of the work collective and as such its worries are his worries. On the other hand he is the authorized representative of the state, which has ordered him to utilize the productive and labor potential of the enterprise with the greatest benefit for society. As a member of the collective the director must protect its interests, and as the manager of an enterprise he must protect the interests of the state, and in economic practice they do not always coincide. The fact that the manager figures directly in two roles must be optimally reflected in the way his remuneration is organized. Otherwise one group of interests will outweigh the other, as experience confirms over many years.

Recently there has been a trend toward differentiating the remuneration of managers as a function of the performance of the enterprise they head. For instance, under the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Widespread Dissemination of New Methods of Economic Management and on Enforcing Their Impact Toward Acceleration of Scientific-Technical Progress" managerial personnel of production associations (enterprises) in industry may be paid a bonus according to the results of operation for the year amounting to as much as two monthly salaries for fulfillment of the assigned summary indicators of scientific-technical progress and as much as two monthly salaries for performance of product deliveries in accordance with contracts concluded. It is very important that these rewards be paid independently of fulfillment of other indicators in the bonus system.

Moreover, ministers and heads of USSR departments have been given the right to establish for managerial personnel supplements to salaries in an amount not to exceed 20 percent for a period of 1 year to guarantee a sizable proportion of output meeting world achievements, to substantially expand exports, and to raise the technical level of production. In our view the effort should be continued to improve the remuneration of enterprise managers in the context of an integrated solution. For instance, no final solution has been obtained to the problem of the best way of motivating managers to adopt more strenuous planning targets.

It would seem advisable to fix the salary of the director of a plant as a function of how fully productive potential at that enterprise is utilized, i.e., according to how well the interests of the entire nation are recognized there. The manager's bonus also needs to be in line with the monthly and quarterly performance of the collective he heads, as in fact is now the practice.

How is the level of utilization of internal potential at a given enterprise to be determined and expressed in a summary indicator, and how are salaries to be differentiated on the basis of its level? In and of itself it is a very complicated problem, and it will take quite a bit of time to find the correct solution to it. But reality is urgently demanding that this not be postponed for long years.

The method of enterprise certification, which is becoming more and more widespread in practice, might be used as one of the versions. Beginning with work stations, the certification gradually extends to brigades and larger structural subdivisions. The time is not far off when certification will embrace even enterprises as a whole. After all, the intensification of our economy requires maximum utilization of the potential in place and all production reserves.

Of course, certification of enterprises in order to determine the salary level of directors will have its own peculiar features and its own set of indicators evaluated. It seems to us that a summary appraisal with respect to five groups of indicators of enterprise performance might be taken as the basis: the volume of production adjusted for fulfillment of the delivery plan in accordance with contracts, utilization of production capacity, product quality, material costs, and labor inputs.

The enterprise is not bound in its actions to utilize potential for improving product quality or reducing material and labor costs. As for increasing the volume of production, this must be linked to consumers and to the supply of materials and equipment. This is best done in the stage of compiling 5-year and annual plans.

In the version we are proposing there is no independent indicator characterizing the application of new engineering and technology, since ultimately this is reflected in the other indicators (the volume of production, product quality, and costs). The application of new engineering and technology is not an end in itself for enterprises, but a means of achieving the highest final results.

The maximum possible levels or optimum levels for each of the indicators certified might be determined so as to take into account all available potential and prospects for the enterprise's development over the 5-year planning period. The maximum levels (standards) for a given enterprise are compared to the actual results, and the difference is determined.

A scale reflecting the differing degree of achievement of the maximum (optimum) operating results would be established for a group of enterprises belonging to a single branch or production operation. We will call it the "scale of national economic efficiency." We propose that the salary of its manager be established according to that scale, planning targets, and the enterprise's actual operating results. This functional relationship might be represented as shown in the table below.

Scale of National Economic Efficiency
(computed difference between actual
operating results of enterprise and
maximum results which are possible, %)

Salary of Enterprise's Manager,
in rubles per month, by categories

	<u>I</u>	<u>II</u>	<u>III</u>
25.0 or higher	300	270	250
24.9-20.0	350	300	270
19.9-15.0	400	350	300
14.9-10.0	500	450	400
9.9- 6.0	600	550	500
5.9- 3.0	700	650	600
2.9 or less	800	750	700

This is the simplest version of the scale's structure. Others are also possible.

Aside from its production program, every plant and factory also has its plan for social development. At the present time their managers do not in essence bear any financial accountability for carrying it out.

Today we are quite well aware how important it is to create for people good working and living conditions, i.e., the social infrastructure. Meeting the needs of the population for material benefits, creating conditions for comprehensive development of all members of society constitute a programmatic

requirement of the party and our chief concern. Enterprise managers have an important role here. It seems absolutely necessary to make them more accountable for performance of measures related to the social development of the collective. One of the versions might be to reduce the manager's salary by one step on the scale of national economic efficiency for nonfulfillment of this plan.

The requirement as to experience, qualifications, organizational abilities, and responsibility are higher for the manager of a large enterprise than for the manager of a small enterprise. That is why it would seem that differentiation of the salaries of managerial personnel with respect to the base and potential qualification must be preserved, but the number of categories (groups) of enterprises for the purpose of remuneration of managerial personnel should be reduced from seven to 3-4, since the difference in the size of the salary will mainly be determined by the degree of strenuousness of planning targets.

The proposed appraisal of managers' performance with respect to the scale of national economic efficiency involves a substantial broadening of the differentiation of salaries. It is obvious that there are no outlays which yield a return so quickly as the outlays for the income of a talented manager.

We might propose by way of discussion that the salaries of directors of enterprises and associations be set, say, in the range between 250 and 800 rubles per month, which would mean a spread of more than threefold. With this kind of spread the highest marks for the performance of progressive managers will have a quite persuasive impact.

An argument that might be made against such salary levels is that certain managers of associations (enterprises) would have a higher income than that of the minister. The argument is based on the director's salary being determined solely by his position. This is an outdated view. That a talented manager at a lower level should have a higher salary is not a terrible thing at all. After all, we are talking only about isolated and exceptional cases. It does not surprise us that people's performers, composers, and academicians may receive more than ministers of culture, health care, or higher education. Another fact that needs to be taken into account is that at present the salary of an ordinary specialist, which is a function of his qualifications and performance, may go as high as 300 rubles a month (a salary of 200 rubles and a supplement running as high as 50 percent).

If a plant director's salary is determined according to the scale of the efficiency of operation of the enterprise from the standpoint of the national economy, this places the manager in economic conditions under which he himself will be internally motivated to activate all the unused potential for production and to achieve the maximum possible operating results.

Enterprise managers would no longer be afraid that the result achieved would be included in the "base" without having an impact on the level of their income.

When the new system of remuneration of the manager is introduced, it is very important to know the possible adverse consequences. For example, won't there be cases when the director of a plant would strive to adopt a production plan that is too high in order to obtain a higher salary, and then this would threaten the plan's fulfillment, and the collective would be left without a bonus? That is, won't contradictions arise between the interests of the collective and those of its manager?

If we look at the director's entire income, rather than looking only at his salary, then this situation is hardly possible. The point is that the desire to increase the salary by 100 rubles thanks to excessively high (unrealistic) planning targets could result in the loss of a bonus amounting to considerably more because the planning targets have not been fulfilled. Moreover, at the end of the year the director would not receive the two monthly salaries because of nonfulfillment of product deliveries under contract and he would also join those managers who have not met their targets. All of this forces him to adopt strenuous plans which can realistically be fulfilled.

As already noted above, the salary level of plant directors envisaged by the present salary scales has now ceased to be in line with the role and importance which top managers have (to be specific, in the context of the substantial broadening of their rights and responsibility). Reality itself makes appropriate adjustments. For instance, the total level of income of many managers substantially exceeds their base salaries because of all kinds of bonus supplements and awards. Quite often all of these payments together exceed the total amount of bonuses for fulfillment of the principal results of the enterprise's economic activity. Many managers are dissatisfied with this situation. They want the level of their remuneration to depend above all on the results of the principal production activity. Our proposal makes it possible to realize that principle.

Evaluation of the work of managers with the scale of national economic efficiency might also have other constructive results. If year after year an enterprise occupies a place in the scale that is far from what is potentially possible, this is one of the important warning signs that the director does not suit the position he occupies. The real price of the manager's labor will become obvious to everyone, even to him himself. Managerial personnel will be chosen on a more objective and planned basis. Now there are frequent cases when managers removed from their posts feel that they have been treated unfairly. After all, they have stayed on the job until late at night, they have worked on days off. They feel that they were doing everything within their power.

The operating results of enterprises and performance of their managers depend on what rights they possess. There has been extensive discussion of these issues in the press, and many people agree that these rights are still inadequate. Yet at the same time rights are not a panacea against all ills. It is above all necessary to learn how the fullest use can be made of those rights which have already been granted to enterprises. For example, the manager has the right to draft and jointly with the trade union committee approve the regulation on awarding of bonuses to personnel for current operating results, one

of the basic principles of which is making the size of bonuses dependent upon each person's contribution in the form of work. But what has been happening in practice? At an overwhelming number of enterprises all personnel on the management staff receive a bonus that is exactly the same percentage of their salary. This is a vivid example of how many managers are not exercising their rights. Meanwhile financial incentives, if properly applied, can have a very appreciable impact on people and motivate them to fulfill production targets, including higher targets. But, as we have already said, since the manager's salary depends on his position, not on results, he himself does not strive to fully utilize his rights in order to obtain the maximum results in the enterprise's performance.

At the same time it cannot be said that managers have all the rights with respect to increasing production efficiency and product quality. There have been many proposals dealing with this. We will discuss one of them, whose performance would not require outlays, but whose benefit might be sizable. It is far easier for the director of a plant to do his job when every member of the collective has an attitude of full responsibility and a creative attitude toward his own duties; here we are referring above all to middle-level managers--chiefs of departments, staff services, shops, etc. Experience indicates how difficult and sometimes even impossible it is to get rid of the chief of a department or staff service who does not want to work. If there have been no flagrant breaches in his work, such a chief can spend his entire life quietly working away at his job, providing no particular benefit to his collective. Quite often such a situation comes about because middle-level managers do not have specific incentives that would motivate them to work at a level of maximum return. It would seem to be a very urgent matter to grant the right to declare all salary positions at an enterprise vacant once every 2 years (or at some other interval). At the same time every specialist would state in writing what position he would like to apply for. A special commission would examine each set of candidates and make recommendations which would serve as the basis for the relevant order.

The objection might be made that such an opportunity exists even now--periodic certification of ITR and employees. But there has been an essential deficiency in the experience with certification. It consists of deciding only one question--Does the worker qualify or not for the position he occupies? Other applicants for the same position are not examined at the same time. And the result is that a mediocre person remains in his position while at that enterprise there is another specialist who might work more effectively in that position.

Some enterprises are not happy with the procedure for certification of workers and have begun to improve it by introducing elements of a competition. For example, in the Nevinomyssk "Kvant" PO a method of expert evaluations has been adopted. In order to achieve greater objectivity the applicant is evaluated by a commission of 30 people: 10 higher managers, 10 fellow workers, and 10 subordinates. Each expert gives a rating on a scale from 0 to 100, and the average rating is obtained from them. A score between 75 and 100 means a high level of display of the attributes a manager needs, while a score of 50 or below means that he does not qualify for his job.

Extending the manager the right to periodically declare all engineering-and-technical and administrative and managerial positions at an enterprise vacant will make it possible to substantially improve the performance of personnel on the management staff. The enterprise managers we have had occasion to talk to about this issue approve this kind of solution. This does not mean that there will be a large-scale reassignment of personnel; it might affect only a small portion of them. But the point is not only and not so much that aspect as the fact that this procedure will compel everyone to work better and to take a more responsible attitude toward his duties and to strive for maximum performance. After all, everyone will understand that the established period of time will pass and there will have to be an objective evaluation not only of his own work, but also of the work of those applying for this position. A considerable psychological reorientation will take place, and there will be a greater sense of competitiveness in improving the quality of one's work. For instance, G. Popov writes that "a competition which recurs periodically is a better instrument than stagnation and passivity, the loss of a sense for the new, it is a powerful implement and incentive both for the self-improvement of personnel and also for improvement of the entire managerial collectivity." (Footnote) (G.Kh. Popov, "Effektivnoye upravleniye" [Effective Management], Moscow, Ekonomika, 1985, p 157)

In the opinion of a number of economists, along with value methods of evaluating the work of managers and specialists (profit, the income remaining to the enterprise) broader use should be made of certification and the holding of competitions among them. This integrated approach will serve as a barrier to "infiltration" into salaried positions of persons who are inert, who are not competent, who are not capable of conducting affairs in the light of the requirements of the present day.

We have a great many talented and distinguished enterprise directors. They should be given not only financial recognition, but also nonfinancial recognition. It would be good to adopt the title "Distinguished Director" with all the appurtenant benefits. This measure, like many others, will be a legitimate expression of society's gratitude to those persons who have made large contributions in development of the country's productive forces and in acceleration of our society's socioeconomic development.

Note from the editors. As the rights of enterprises have been broadened and their accountability increased, the role of their managers has been growing. But the present system of remuneration for this category of personnel does not meet present-day requirements and is in need of reorganization. P. Dubovoy, the author of the article, proposes ways of solving this problem. We cannot concur in all of his proposals. That is why we call upon readers, above all directors of industrial enterprises themselves, to take part in discussion of the questions dealt with here and to express their own point of view.

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LABOR

WAGE, LABOR PRODUCTIVITY RELATIONSHIP ANALYZED

Moscow EKONOMICHESKAYA GAZETA in Russian No 41, Oct 86 p 8

[Article by T. Serebrennikova, candidate of economic sciences, under the rubric: "Restructuring the Economic Mechanism": "The Economic and Social Functions of Distribution"; passages in all capital letters printed in boldface in source]

[Text] The problem of accelerating the nation's socioeconomic development requires the reappraisal of many views of distribution and the social sphere. In our opinion, the relationship between the two basic forms of income under socialism acquires special importance in this regard. The reference is to wages and sums received by the population from social consumption funds. Today it seems especially important to make a proper evaluation of the role and significance of each of these forms and their inherent features that stem from their economic nature. Many current aspects of this problem were discussed in the article "Distribution and Justice" (No 40).

Remuneration for labor [opлата po trudu]--the principal form of income distribution--stimulates the growth of social production and its increased effectiveness. Only on this basis will it be possible to secure the stable improvement of the people's well-being, inter alia, on the basis of the social consumption funds. Remuneration for labor thus performs its main economically stimulating function of income distribution.

Practically all remuneration for labor is monetary. Therefore, it is used to satisfy all needs, the degree and sequence of which is determined by the consumer himself based on his income, prices on goods and services, and his personal system of preferences.

Social consumption funds, on the other hand, are for the most part made available to members of socialist society independently of the quantity and quality of labor inputs (even though the size of the pension, for example, depends on past labor contribution). This independence permits us to say that social consumption funds perform the social function of income distribution.

Another feature of distribution through social consumption funds is that they are not a homogeneous socioeconomic whole. The population's social security (pensions, grants, scholarships) is financed by one part of it. The other

satisfies the most socially significant, highest-priority needs--medical care, education, certain cultural services, housing maintenance subsidies. These needs are satisfied in a strictly targeted form on the basis of need. The fact that these goods and services are made available to all members of society free of charge or at reduced rates means that society is the social guardian of these needs and that they are less dependent on the individual consumer's choice. Society thereby guarantees everything that is required for the mental and physical development of the individual, which is also necessary for social progress in general.

Remuneration for labor and the social consumption funds closely complement one another by performing the economic and social function of distributing material consumer goods and services. They make it possible to realize in full measure one of the basic principles in the development of socialism--the combination of economic effectiveness and social justice in the sphere of distribution.

Of course, the economic and social functions of income distribution are not separated from one another by a stone wall. These functions are determined by the level of socioeconomic development of society, by the nature of the population's needs and preferences, by the degree to which the structure of socioeconomic and moral-ethical principles of socialist society corresponds to that of the individual, and by the cultural and educational level of people.

The labor base [trudovaya osnova] of society's socialist ownership of the means of production and the labor base of the socialist distribution of goods are the core of the distribution function. But precise differentiation between remuneration for labor and social consumption funds, between economic and social functions of income distribution is a necessary condition for an effective, purposeful economic and social policy. Confusion of their functions, as practice shows, only leads to economic and social losses.

Such losses occur, for example, when an attempt is made to use remuneration for labor to resolve purely social problems and when social consumption funds are assigned the inappropriate function of promoting the growth and effectiveness of social production. A typical manifestation of such "socialization" of remuneration for labor is the deeply-rooted practice of wage-leveling and the striving to provide workers with a sufficiently "acceptable" level of consumption even though this does not correspond to their actual labor contribution, which greatly distorts the fundamental principles of socialist distribution according to one's labor. Also grossly distorted in such a case are the basic economic principles of stimulating the effectiveness of social production and the principles of real rather than misconstrued social justice, which of course does not reduce to artificial leveling. The result is a sharp decline in the social status of honest, highly productive labor in order to realize society's interests.

Here we fully support the author of the article "Distribution and Justice," which correctly emphasizes the danger posed by economic devaluation of wages. Nevertheless, it could be said that the article slightly underestimates other elements of the motivation mechanism that motivate workers to work with a high

degree of effectiveness--occupational prestige, the population's working and living conditions, and the ecological situation.

The foregoing may suggest the "natural" but absolutely incorrect conclusion that the position formulated above contradicts a policy of emphasizing the use of associations' and enterprises' own earnings in the resolution of social and economic problems.

We believe that there is an obvious confusion in the evaluation of the nature of enterprise incentive funds. The article "Distribution and Justice" properly addresses a number of aspects of the problem. These funds represent a modified, labor-targeted income that hinges on the effectiveness of the labor of the entire collective and every worker.

It would appear that an all-round improvement of working conditions of the labor force should be among the principal functions of the social funds of production associations and enterprises. Strict social oversight must be instituted over the expenditure of enterprise and association funds since they might otherwise generate unwarranted disparities in the living standard of different social strata and groups in our society.

The main principle of socialism--the total correspondence of the remuneration of labor to actual performance--must be observed without fail in the process of improving distribution relations. The violation of this principle cannot be justified by any considerations of a "higher order" because there is nothing higher than this principle; this is one of the main aspects of public ownership of the means of production. Here, too, I would like to emphasize one fundamental point. It would be a major mistake to believe that effectiveness of the system of material incentives increases in proportion to the amount of resources channeled into increasing remuneration for labor.

The most decisive factor is the degree of effectiveness with which the wage fund is used. First, it is essential that the DIFFERENTIATION OF WORKERS WITH REGARD TO THE LEVEL OF REMUNERATION OF THEIR LABOR REFLECT THEIR ACTUAL CONTRIBUTION TO THE ENHANCEMENT OF THE EFFECTIVENESS OF SOCIAL PRODUCTION.

Second, as a number of Soviet economists justifiably emphasize, the OBJECTIVE NECESSITY OF WORKERS TO KEEP A CERTAIN JOB MUST BE THE MOST IMPORTANT INCENTIVE TO PERFORM HIGHLY PRODUCTIVE LABOR. Consequently, associations, enterprises, organizations, and institutions must be given substantially broader powers in planning the size of the work force. Enterprise management should be relieved of the responsibility of finding jobs for discharged workers and this function should be transferred to special social institutions.

The creation of a rational employment system for the population which is socially and economically effective will also make it possible to substantially raise the stimulating function of labor remuneration.

In turn, the existence of a comprehensive system of social guarantees to the population of a certain living standard on the basis of social consumption funds is a most important condition for the development of effective material

incentives. In such a case, socialist society would not have to "fear," if such an expression can be used, the elimination of wages' "social security" function, could take the actual contribution of workers to social production fully into account, and could accordingly differentiate earned income to a greater degree.

At the same time, it must be considered that the problem of income redistribution objectively arises here.

Another key impact of social consumption funds on the economic effectiveness of production can also be noted. They form the quality of the contemporary work force in large measure, promote the acceleration of scientific-technical progress, and dramatically raise the effectiveness of utilization of production resources.

Calculations show that there is presently a high degree of differentiation in the use of social consumption funds between the urban and rural population as well as between individual regions and population centers. Therefore, a sharp reduction in the regional differentiation of social consumption funds and in existing distinctions between town and country, between large, medium-size and small towns is a most important direction in the improvement of the future distribution of social consumption funds.

The solution of this problem not only promotes the resolution of purely social tasks. It is also essential for the optimal location of production throughout the nation, which means the more effective utilization of the economy's production resources.

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